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JURISPRUDENCE OF THE NOSE, THROAT AND EAR.*

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The rise of specialism has resulted from the great extension of knowledge and the necessary detail which its understanding requires. In the good old days of Plato and Aristotle, one man could encompass the field of knowledge, but as it has broadened in extent, divisions and subdivisions have become necessary until now there are a multitude of workers tilling small portions of this wondrous soil. Modern experience has shown that to do justice to even the smallest of sub-divisions, a man must devote his entire energy to it; even then, to grasp it well he must constantly narrow his study or it eludes him. Out of this process of concentration of study and devotion to details have grown the various special branches with their exponents who are ever-extending their investigations, yet ever-narrowing their work in life.

This division of knowledge and restriction of work are exemplified in medicine perhaps more than in any other field of human activity. To say nothing of the laboratory departments of medicine, there have been developed in the last quarter of a century, numerous specialties which have in turn grown with remarkable rapidity. I need but ask you to look at our own lines of work to demonstrate how extensive has become what was once but a minute portion of the vast fabric of medicine.

We must confess that, desirable as this is for the development and understanding of knowledge, it is not an unalloyed good. The very

* President's Address before the American Academy of Ophthalmology and Oto-Laryngology, Buffalo, September 14, 1905.

process tends to make us mechanical rather than philosophical, routinists rather than research workers, followers rather than creators.

And so great has become the mass of accumulated facts in any branch of medicine, that but few men are equal to the task, unless their interest be real and their activity continuos. Difficult as it may be to keep up with the progress in any line of work, we must accept the challenge which knowledge has thrown to us, the gage of battle which truth forces everyone to take up before she is to be discovered.

And yet if we do our full duty we must not forget the world of knowledge around us, the world of truth which has been uncovered by the hard efforts and determined struggles of men in other fields.

On the borderland there is much that influences medicine for the profession and humanity. Beyond this border we must constantly look, and learn from what we see. Along the confines of medicine there is no more interesting study than jurisprudence. Important in its relation to medicine, it enters into every specialty and manifests its bearing upon every branch of the profession. It is this subject of medical jurisprudence as it relates to the nose, throat and ear that I have selected as worthy to bring before you in acknowledging the high distinction with which you have honored me.

The study of legal medicine in its relation to the nose, throat and ear is not much encouraged, especially in this country. The reason is not far to see. Physicians are averse to court service. They object to the catechism to which they are subjected by attorneys. They fear the false position in which they may be placed, either from questions which they answer on the spur of the moment or from the false construction placed upon their answers by judges, juries and attorneys. Besides this, the interference with other duties, the delays and vexations of court attendance and the publicity all have their weight in making this work most distasteful.

But these conditions are inadequate to justify a lack of interest and attention, especially where public duty is at stake. Shall we shirk it because it is difficult, trying, unpleasant and prejudicial to our reputation? Diphtheria, atrophic rhinitis, tuberculosis, scarlatina and other conditions which affect the nose, throat and ear fall within the same category, but shall we refuse them our aid on this account? Shall we not rather welcome the opportunity of doing our full duty in spite of the dangers, trials, discomforts and annoyances to which they subject us?

In matters of jurisprudence the physician is called to perform certain functions. He is asked to give advice, to counsel on matters affecting a client, he is called upon by attorneys and by courts to make examinations with a view of subsequently giving opinion in court and he is asked to give an opinion as an expert after hearing the complete testimony of a case in action. There are some essential differences between the testimony of experts and the testimony of ordinary witnesses, but in this country the lines are so imperfectly drawn that one judge may rule that an expert is not required to testify upon just such questions as another judge would force him to answer. In England, according to Tidy, no man can be compelled to testify as an expert. In this country one may be forced to testify against his will; however this rights itself in that very few attorneys would agree to accept the testimony of an unwilling expert.

The variety of questions which arise in connection with this duty of a physician as an expert is manifold indeed. In the continental countries of Europe, a large portion of the subject is devoted to the army, where by reason of the compulsory army service, physicians are frequently called upon to determine the validity of the prospective or enlisted soldier's claim to exemption from service; in this country, this is but a small feature.

We are far more concerned with damage suits. In most of the continental countries the laws are specific as to the indemnity, and opportunity for bringing suit is lessened by the strictness of the government and the inadequacy of funds on the part of the poorer portion of the community. Here where we have so much freedom, anyone whether he be rich or poor may bring suit, and he may obtain ample legal assistance whether his cause be just or not. As indicated in a recent magazine, "The Profession of Getting Hurt" is becoming an extensive one, in fact a serious one, and the resources which trickery and blackmail are utilizing make it a decided menace to corporations and business interests.

In criminal matters the testimony of the laryngologist and otologist is sometimes of great importance, for a painstaking investigation of the condition of the ear, nose and throat may throw light upon the guilt or innocence of the defendant.

There is a large variety of nose, throat and ear affections to which the medical expert must refer in the performance of his duties. It is remarkable how wide-spread are the questions involved and how important they become. The nose is not often concerned in causes of legal action. Fractures of the nasal bones, fractures of the septum, contusions and wounds of the nose are naturally brought

into play. Suits have been introduced based on the plea that a chronic affection of the nose resulted from an accident. Loss of the sensation of smell has often been claimed to have been due to an accident. The accessory sinuses may be made a matter of consideration either in the way of direct injury or in disease resulting from accident. A manifest chronic suppuration is sometimes held to be of traumatic origin. These claims are brought forward not by malingeringers alone, but by those who are honestly mistaken as to the cause of their ailment.

The throat is a far more important organ in medical jurisprudence. Traumatisms may affect the pharynx or larynx and may thus be brought to an issue in court. Fractures of the larynx, which are very uncommon, are nevertheless to be considered. Criminal jurisprudence has much to do with wounds and fractures of the larynx, while many associated conditions in which the larynx is involved are matters of medico-legal interest. Thus, sudden death by respiratory obliteration is often a question, for death may result in infants and dementes from the entrance of the alimentary bolus into the larynx or trachea, and asphyxia may occur through arrest of the mass at the upper extremity of the esophagus by pressing against the membranous wall of the trachea. Suffocation may be caused by gastric ejecta entering the larynx. Fatal inhibition may have its point of departure in the respiratory passages, for sudden death supervenes upon operations of no unusual gravity upon the nasal fossae, pharynx and palate.

Strangulation is another question which must interest the student of jurisprudence of the larynx. It may result from external force, applied by the hand or by bands, ropes, etc., such as in hanging. Death may occur even if the external force be only moderate, doubtless from reflex action or inhibition. Suffocation may result from the application of the hand over the nose and mouth or from the use of some other agent which prevents the air from passing into these two organs. It is remarkable how much resistance is exhibited by young infants and animals who are subject to this practice. Cases have been reported where infants have been recalled to life after an exceedingly long period of suffocation.

Drowning, which, according to Castex, comprises one-third of the cases of accidental death and one-fourth of the suicides, becomes of much interest in so far as the effect on the nose, throat and ear is concerned. It is not necessary that the entire body should be covered with water, as death may follow when the nose and mouth alone are submerged.

The throat is concerned very often in simulation where an attempt is made to obtain damages. Claim is not infrequently made that loss of voice follows accident as a result of the concussion or direct violence. Sometimes absolute mutism is affected and simulated for a long time. In a case that came under my observation, the plaintiff claimed that the accident caused a loss of her singing voice without affecting her speaking voice. As it was easy to prove that there was no loss of musical sense in her case, and as she claimed to have lost her ability to whistle at the same time, it was readily established that she was simulating.

Hysterical affections of the larynx may follow accidents just as other symptoms of traumatic hysteria. In one case, to which I shall later make reference, it was easy to demonstrate the presence of hysteria of the larynx, shown in the aphony, one-sided paralysis of adduction and hemianaesthesia of the larynx.

The ability of a singer or speaker to fill a contract is sometimes brought before a laryngologist for expert opinion. Through disinclination, pique or other reason, the artist may refuse to fulfill the agreement claiming that some affection of the vocal organs prevents. The expert is here required to make very nice distinctions and close study in order to give an opinion which can be accepted as final and which will be just to both parties concerned.

Jurisprudence of the ear offers ample opportunity for study. Traumatisms of the ear have been most extensively investigated with reference to their bearing on medico-legal questions. Röpke found that out of 45,719 accidents, there were 57 which concerned the ear. Tommasi presents a most extensive investigation upon this subject, in recent numbers of the *Archives Internationales de Laryngologie, D'Otologie et de Rhinologie*. They include every variety of simple incised, contused and infected wounds, gun-shot wounds, fractures, burns, traumatisms to the external and middle ear, labyrinth, mastoid, membrana tympani and other structures of the ear. Suppuration must be carefully considered with a view of determining whether it preceded the accident or resulted from it or occurred later without any dependence on the accident. The deafness present must be investigated likewise, so as to establish whether it was antecedent or resultant to the accident or independent of it. Similar observation must be made with regard to tinnitus and vertigo. It must not be forgotten that even the most conscientious plaintiff will magnify these conditions.

Ear lesions result from hanging, though there is some discussion as to whether they are produced post-mortem at the moment after

the body falls when the rope is cut, or at the time of the hanging. Lagroux and Gelle, experimenting on dogs killed by hanging and strangulation, found bloody suffusions in the tympanic cavity. Explosions, particularly from dynamite are very apt to cause lesions of the ear such as rupture of the tympanum and dislocation of the ossicles, hemorrhage into the tympanic cavity, while symptoms of tinnitus and deafness may follow.

Neuroses of the ear are not often brought into question in connection with medical jurisprudence, though hysteria is occasionally a matter of some importance. A case in which I was called as an expert presented an opportunity for demonstrating the presence of hysterical deafness. Following an accident of a very serious type, Mrs. M. had been taken with a most aggravated form of hysteria with symptoms of complete hemianaesthesia, phantom tumor, etc. I was called to see her by Dr. Schwab of St. Louis, in consequence of a suddenly developed aphonia which readily disappeared under a plan of suggestion, recently described. Several weeks later she complained of sudden and complete deafness on the affected side. Examination showed no hearing for watch, whisper or speech on the left side. Weber lateralized to the right, tuning fork by air nil, by bone, heard in the other ear. It was clear from this that if she told the truth as to the tests she could absolutely not hear in the left ear. Examination of the right ear showed impacted cerumen. This was washed out and the tests repeated. As soon as the Weber and Rinne tests were made the woman burst out crying, claiming that I had caused her to lose her hearing on the right side, demonstrating to my mind, at least, that she was not in any sense feigning and that the lateralization of the Weber and Rinne tests to the right side was truthfully expressed. The plug of cerumen naturally intensified the sounds in these tests. No simulator, unless specially instructed in otology could have known that washing out the cerumen would lessen the appreciation of the Weber test. The woman soon made a complete recovery from the deafness, but the other hysterical symptoms continued, and she eventually died still suffering from traumatic hysteria.

The detection of simulators of deafness has been so very well brought out by ingenious test contrivances, that practically no one can continue the deception, when full opportunity is given for examination. The well-known experiment of Weber is utilized, with its unexpected results following the occlusion of the healthy ear with wax. The lateralization of the sound in chronic middle ear affection is a phenomenon which few simulators are prepared to encounter.

A variety of tests can be made by plugging the ear with a solid mass and following it with a hollow body which permits the air to come in contact with the drum. By ringing in changes suddenly it is often possible to detect the simulation. Several methods have been devised upon the plan of speaking into tubes placed in the ears of the individual tested. By compressing the tubes from time to time it is possible to determine which ear is competent to hear without the simulator being able to follow the changes. If two persons speaking into the orifice of the tubes ask questions simultaneously, one in each ear, the person suffering with unilateral deafness will answer, without hesitation the questions asked through the tube of the unaffected ear, while the munker will be overcome with confusion. If two persons possessing a similar quality of voice speak into the two tubes, it will be easy to detect any simulation by exhibition of even a little ingenuity in this regard.

Simulation of deafmutes is far more common in the army and naval service than in civil suits. Some very well sustained instances of simulated deafmutes have been reported. They generally fall, however, by close examination of their characteristics, habits, writing, etc. The deafmute, when he knows that some one is speaking to him is all attention and does not permit a single gesture to escape him. The false deafmute never notices the faces of those who speak to him and keeps his eyes lowered as if he were afraid that they would betray him. The attitude and gestures are exaggerated and unharmonic, showing his constraint (Lannois). When the simulator is asked to write he is almost certain to betray himself if he admits an ability to write. Deafmutes trained under the older methods have few if any abstract ideas, hence what they write must indicate concrete concepts. Thus Gogguilot cites the case of a munker who wrote "je suis sourd et muet, je n'ai pas de moyens d'*existence* . . ." A deafmute would never say he needed the means of existence. He would say he had no more bread or no more money or could do no more work. Under the modern methods of training, deafmutes acquire a much higher order of ability to write. Evidence as to this of course could readily be determined.

Not the least interesting question that comes up in connection with this subject is the standing of a deafmute before the law. Until Napoleon's time the deafmute had a very trying position on the continent of Europe. According to Castex the Roman law was cruel to the deafmute who was not permitted to dispose of his person or goods and was ranked with idiots and the insane for the conduct

of his affairs. Most of these deficiencies have been eliminated and in the main the deafmute has a position dependent upon his intelligence.

From the multitude and variety of subjects involved, it must be certain that the ear, nose and throat have an importance in medical jurisprudence which justifies an earnest study. It is intertwined with every branch of the subject and its exposition progresses with each advance made. Its fibre forms a portion of otology and laryngology without which the fabric is incomplete and the weave defective. Shall it still rest as a burden for those who are willing to bear it? Shall it interest only those whom accident or opportunity forces into action?

I appeal for more regard for this work, however distasteful it be; for more courage in undertaking it, however prejudicial to reputation it may become; for more willingness to accept it, even though it is always trying, annoying and time-consuming.

The same high principles are to guide us in answering this appeal that, from the earliest times, have been burned into the soul of all true medical men: to speak the truth, to do no man harm, to hearken to the call of duty, to shun all boasting and to give ear, heart, hand and tongue to all that will further the well-being and good of mankind.

Humboldt Bldg.

Nasal Tamponade—B. CHORONSHITZKY—*Monatschr. f. Ohrenh.*,
Berlin, Jan. 1905.

The author suggests the use of styptic cotton for nasal tampons after operations, especially after the removal of the posterior end of the inferior turbinate. The styptic cotton is prepared by immersion in a solution of sesquichloride of iron of specific gravity of 1280. A 5 to 20% solution of ferropyrin can also be used. The tampons are left in for twenty-four hours. The author claims that they do not irritate the nose.

YANKAUER.

THE SUB-MUCOUS CAUTERY—ITS USE IN THE TREATMENT OF HYPERSTROPHY OF THE INFERIOR TURBINATES.

BY S. J. KOPETZKY, M.D., NEW YORK, N. Y.

The various methods suggested from time to time for the treatment of the redundant tissue in hypertrophy of the inferior turbinate body needs no repetition at my hands. Of all the advocated methods, the employment of the electric cautery has been received with by far the greatest favor. Laterly, however, its use has been more or less restricted, and Rhinologists have not been entirely satisfied with the results obtained from its use.

The ordinary cautery, as usually used, aims to introduce a ledge of connective tissue (scar tissue) from the outer surface of the hypertrophied mucous membrane, to the bone, this ledge acting mechanically to hold the redundancy of the mucous membrane in check, and to keep sufficient space free to permit the physiological play of the air-streams through the nose.

This method, while giving free passage to the air-streams, interferes with the physiological function of the turbinate in so far as it acts as an effectual check to mechanically hinder the normal swelling and contraction of the turbinate body, constituting as this does the physiological function of regulating the volume of air passing through the nose. Furthermore, not only this method of treatment, but also the application of various acids all tend to destroy the epithelial layer of the mucous membrane of the turbinate, wholly or partially.

It is this epithelial layer and the histological structures lying immediately under it, that play an important part in the functional activity of the turbinate. The attention of the profession has been called to these structures,—the intra-epithelial glands (Hajek), the elastic fibres of the tunica propria (Kopetzky), the nerves, etc. (Rugini)—so recently, that the time is ripe to devise a method of treating hypertrophied turbinates without destroying these functioning structures.

The destruction of the epithelial layer and the underlying tunica propria, and its replacement by connective tissue in the form of scar tissue, destroys a functioning membrane and replaces it with a non-functioning tissue. The results of this replacement are crustation, dryness, and partial loss of function in the cavern-

ous bodies, and they bring about a train of symptoms which has caused many Rhinologists to replace the cautery by massage of the turbinate and other therapeutic measures in treating hypertrophied turbinates.

The problem is not only to lessen the turbinate body as a whole and remove nasal obstruction, but to procure free physiological play for the air-streams, and at the same time retain all the functionally active parts of the turbinate bodies.

With this object in view, I have devised a sub-mucous cautery which seems to me to answer all the requirements of the problem. It lessens the totality of the mass of the redundant tissue, but does not destroy the epithelium, and the resulting band of connective tissue is placed so deep in the turbinate body that no interference with the functioning power of the turbinate is brought about.



Fig. 1. Sub-Mucous Cautery.

THE INSTRUMENT.

The blade of the instrument (Fig. 1) is made of an alloy consisting of about 30% platinum iridium, a mixture of metals which easily and quickly becomes white-hot when the electric current is passed through them, yet having sufficient stability to retain its shape and permit its introduction into the tissues while cold. The cautery-end is one and one quarter inches long, one quarter inch broad, and as thin as it is possible to make it without sacrificing rigidity. The handle is made of metal and fits into any standard cautery handle.

TECHNIQUE.

The field of operation is cleaned of all secretions, and a 4% solution of cocaine, or a 10% solution of B. eucain is applied over the hypertrophied tissue, followed by an application of an 1/1000 adrenalin solution. It is not necessary to cause a complete depletion of the blood vessels, nor is it required to completely anaesthetize the mucous membrane. If the mucous membrane is tightly contracted down to the bone, the introduction of the cautery knife into the

tissues presents difficulties. The tip of the instrument being sharp, its introduction into the tissues causes very little sensation, if any at all.

The nostril prepared, the instrument is then introduced (cold) into the redundant tissue, along the septal side of the turbinate bone, backward, under the mucosa, as close to, and following the septal side of the bone as it is possible to go.

Fig. 2. illustrates the sub-mucous cautery in position.

In those cases where the redundancy of the hypertrophied tissue is irregular, or where the condition exists, which in a recent study

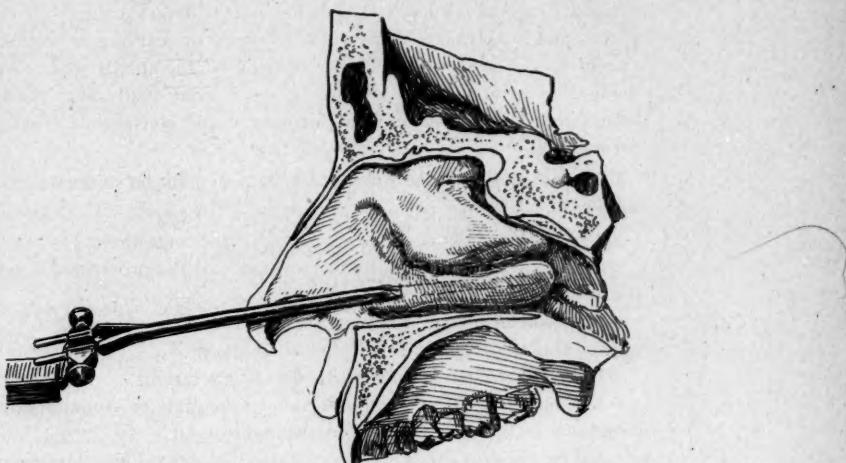


Fig. 2. Sub-Mucous Cautery in Position. (Outline showing same under Mucous Membrane.)

of pathological conditions of the mucous membrane of the turbinate, I designate as "*etat mamelonne*," the submucous cautery should only be introduced into the circumscribed hypertrophied portion; the septum and the remainder of the turbinate being protected from the action of the protruding blade-end by thin pieces of card board or Bernay sponge.

The instrument in position, the electric current is allowed to pass for a few seconds only, and the instrument is at once entirely withdrawn from the nose before it cools. A slight bleeding may occur from the point of entrance. Looking into the nostril immediately

after the cauterization, one should observe a whitening streak, slightly broader than the blade of the instrument, shining through the overlying stratae of the mucosa. This disappears in the course of a few hours. A light dressing of cotton wet with a 1% solution of Protargol is then applied to the entire turbinate. The reaction following this procedure is very slight. The results obtained have answered all the indications calling for the use of the cautery.

To date, I have employed this method in one case of localized hypertrophy of the inferior turbinate and in ten cases of diffuse hypertrophy of the inferior turbinate. Among the latter, one case gave post-operative evidence of hemorrhage which was, however, easily held in check by adrenalin. In none of the cases was the reactionary coryza as marked as when the ordinary cautery is employed and in no case was there any evidence of scarring or scabbing except at the small point of introduction of the instrument. This method of cauterization absolutely does away with any chance wounding of the septal mucous membrane and consequent synechia formations.

The advantages of the sub-mucous cautery may be summarized as follows:

1. A lesser amount of cocaine required for anaesthetic.
2. The time required in the performance of the procedure is very short.
3. The after effects and reaction are practically absent.
4. Danger of synechia formation is absent.
5. There is no resultant scabbing or crustation.
6. No destruction of superficial epithelium or functioning structures in the tunica propria is brought about.
7. The method effects relief to nasal obstruction from hypertrophy without interfering with the contractile action of the turbinate, in that it introduces a re-enforcement of the connective tissue strata with scar tissue, without extending this connective tissue to the surface of the turbinate body.
8. Results have proven uniformly good, and from present indications (three months after the first use of the instrument) the results obtained seem to be permanent.

In conclusion I wish to express my indebtedness to Dr. Thomas J. Harris for the generous kindness which placed some of the material at the New York Post-Graduate Hospital at my disposal, and I wish here to thank him for his kind courtesy.

The Sydenham, 616 Madison Ave.

TUMORS OF THE MIDDLE EAR, WITH REPORT OF TWO RARE VARIETIES.*

BY JOSEPH C. BECK, M.D., CHICAGO, ILLINOIS.

Tumors or new growths of the middle ear are not very extensively treated in most of our text-books, and aural polyps are usually the one growth that one finds described more extensively than any other, and not very much said as to the pathology, which is of some interest.

The various kinds of tumors that may arise from the middle ear are manifold, because all three embryonal layers are there represented, as the mesoblast, epiblast and hypoblast. Among the varieties of tumors that I have been able to find reported in literature arising primarily from the middle ear are the following:

MALIGNANT.

Sarcoma, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; Carcinoma, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35.

MALIGNANT, MIXED.

Myxo-sarcoma, 11; Fibro-myxo-sarcoma cavernosum, 12; Melano-sarcoma alveolaris, 13; Osteosarcoma, 14, 15; Endothelioma, 36, 37, 38; Chloroma, 39; Anglo-endothelioma.

NON-MALIGNANT.

Simple infectious granuloma: Tuberculosis, 40, 44; Lupus, 45, 47; Syphilis, 48, 49; Actinomycosis, 50.

Polyps: Mucous polyps; Fibrous polyps, 51 and 52; Fibroma, 53, 69; Myxoma, 56; Osteoma, 57 to 65; Adenoma, 54, 71; Angioma, 55, 66, 67, 70; Psamoma, 102.

MIXED NON-MALIGNANT.

Myxo-fibroma, 68; Anglo-fibroma, 72; Chondro-adenoma, 73; Dermoid cyst, 74; Cysts, 75, 76, 77, 78, 79.

Cholesteatoma; doubted by many as a new growth, 80.

Various degenerations and changes in Polyps, 93. As fatty, 89; Chalky and bony, 94, 95; Cystic, 85, 86, 87; Glandular, 82, 83, 84; Hemorrhage, 88; Cholesteatoma, 81, 96; Abscess ulceration in polyp, 90; Atrophy, 91, 92.

* Read before the Tenth Annual Meeting of the American Academy of Ophthalmology and Oto-Laryngology, held at Buffalo, September 14, 15 and 16, 1905.

Gruenert ⁹⁷, says that Bruehl ⁹⁸ and Goerke ⁹⁹ have the proper idea as to classification and pathological diagnoses of tumors of the middle ear, which is briefly as follows:

1. Malignant: Sarcoma and carcinoma.
2. Non-malignant: Mucous and fibrous polyps.

All the other varieties that are mentioned by other authors are nothing more or less than changes going on in the various component parts of the polyp, says Goerke. For instance, fibro-angioma is an increase in the fibrous tissue and blood vessels, and new formation of the same. An adenoma is a tumor in which the lymphoid cells and other glandular structures predominate, etc. A pure myxoma, such as one finds in the nose, he denies, and says it never occurs in the ear primarily, proven by several hundred microscopical examinations of ear polyps. These views are not held, however, by all authors, as Moos and Steinbrügge ¹⁰⁰ have found four cases of pure myxomata in the middle ear. Weidner ¹⁰¹ has seen an angioma of the middle ear in which he demonstrated the newly formed blood vessel.

I have brought with me specimens of ear polyps which show distinctly, first, new formations of endothelia and blood vessels, without any inflammatory condition, and, second, a true myxoma, which might show that Goerke's deductions, though highly authentic, need not necessarily be correct. Again, the clinical picture of this case of angio-endothelioma is so different from ordinary cases of ear polyp that I may be excused for bringing it before you, and reporting it as rare. In fact, it is the only case of that variety on record, so far as I have been able to find in the literature.

Case 1. Mrs. Enda M., aged 23, married; one healthy child.

Family history: Negative, except that her sister had her tonsils removed at the age of 21, which was followed by such excessive hemorrhage as to necessitate transportation to the hospital, and ligation of the carotid artery. (I have seen the patient.)

Childhood history: Measles, whooping cough, mumps. Tonsillitis from the second to the eleventh year. At this age tonsils were removed, with little bleeding. Diphtheria at fourteen. Acute bronchitis at sixteen, followed by neuritis of the left side of the arm. At the age of nineteen, she noticed some deafness in her left ear, with slight pain; also a frontal headache. Consulting a physician, she was told she had catarrh. He irrigated her ears, and the patient declared after that she heard better, but a marked noise developed

distinctly simultaneously with her heart beat, which continued for two years, when she consulted Dr. Cartwright, of Chicago, who told her that she had a tumor in her left ear, and sent patient to me.

Additional history: She had never any discharge from her ears, so far as she knew. There is no specific history to be obtained.

Examination: Hearing, right, V. S. normal; watch, 30 inches; fork, high and low; whistle, complete scale. Left, V. S. 1 foot; watch, contact; fork, hears both; whistle, some of the lower tones not heard so well. Rinné,—. Weber, < L.

Nose and throat: comparatively negative.

The right ear: normal. Left ear: A growth fills up the whole canal and can be easily seen at the outer meatus. It has a bluish-gray appearance; is not painful on pressure; covered by a thick layer of epithelium. On trying to see where the attachment of the pedicle may be by means of a blunt-pointed probe, I found this to be extremely painful, and followed by free bleeding.

Diagnosis: Aural polyp of unknown nature. I recommended its removal, to which the patient consented.

Using a local anesthetic, as cocaine, menthol, carbolic acid, full strength, in equal parts, and strong solutions of cocaine, I found it impossible to proceed with the operation, owing to the hypersensitivity of the parts, and consequently recommended her to take a general anesthetic, which she also consented to do. This was done two days later, the patient being properly prepared in the meantime, a further examination as to her general condition finding her normal in every part of the body, except for some laceration of the cervix and perineum, which had followed childbirth. The urine analysis was negative.

Operation: December 3, 1904. A blunt-pointed probe found the growth to be firmly attached anteriorly about a half an inch from the external auditory meatus. Bleeding following this procedure was profuse and uncontrollable. I applied Blake's polyp snare as rapidly as possible, and removed a part of the tumor about the size of a pea. This was followed by hemorrhage such as one gets in opening the jugular or the lateral sinus. I wish to make this one point of interest in connection with the pathology of this growth. I was unable to continue the removal of any more of the tumor, because after several attempts of compression and various other means to stop the hemorrhage, I was unable to do so. Fresh violent bleeding would occur. I then packed the ear firmly, by the aid of

external compression stopped the hemorrhage, and placed the patient in bed.

The microscopic examination of specimen made by Dr. Evans, of the Columbus Laboratories, showed it to be a very vascular tumor, with many small cells, possibly sarcoma. However, the statement was made by Dr. Evans that the vessels showed a more firm condition than one finds in a sarcoma.

The patient's condition following the operation was: temperature, pulse and general condition normal; but a slight facial paralysis was seen on the left side, which I accounted for by the firm compression that was necessary to stop the bleeding. The bleeding, while not so violent as at the time of the operation, occurred at each dressing, until after about a week, when cicatrization of the stump took place. The facial paralysis gradually disappeared.

In view of the microscopic examination, I made a proposition to the patient to do a radical operation, to which she consented, and re-entered the hospital about a month later. During this time Dr. Henry Wagner, of San Francisco, being in Chicago, saw the case, concurred in the diagnosis and indications, and suggested the use of gelatine foods preliminary to the operation, as he said he had success in lessening thereby the tendency to bleeding in similar conditions. I mention this incidentally to show that it had no effect in the operation which followed.

Radical operation: July 21, 1905, under general anesthesia, the radical operation was performed, with very little difference in the steps from that performed in cases of chronic suppuration of the middle ear. I was very careful not to open into the membranous portion of the external auditory canal until I had removed enough bone, owing to the bleeding that I anticipated would follow this procedure and obscure the field of operation.

Again, I would like to make the point about the bleeding tendency of this patient, in that from the moment the skin was cut back of the auricle, there was constant, uncontrollable oozing from every cut in skin and bone. There was no evidence of disease in the cell of the mastoid; in fact, everything appeared normal, until I removed the external wall of the aditus, and the bridge before reaching the attic. I then rapidly slit the membranous canal and exposed the growth, which measured about half an inch in length, and one-fourth of an inch in thickness, being attached to the anterior wall of the middle ear and not to the external auditory canal, as said before. I was particular to see if there was any abrasion in the

course of the external auditory canal, and found none. With a dull scoop I delivered the tumor, and Dr. Wagner, who examined it, declared at once that it was encapsulated. I thoroughly scraped the surface where the tumor had been attached, completed the operation, draining in both directions. The patient made an uneventful recovery, with a very protracted healing of the posterior opening. It would bleed frequently, and was extremely sensitive.

Microscopic examination of the tumor removed, made by Dr. Evans, of the Columbus Medical Laboratories, showed numerous blood vessels, which are filled with distinct endothelial cells. Many of these vessels seem to be broken, and the same kind of cells (endothelial) are dispersed within the stroma. There is a distinct layer of epithelium covering the tumor, but none of the epithelial cells penetrate below their normal stratum. There is no inflammatory reaction, except at that portion of the tumor where the first part had been severed, and that limited purely to the borders. No other structure can be made out in the specimen.

Endotheliomata are classed, according to Senn, Warren, and Thielmann, among the sarcomatous structures, and are malignant. Angiomata are non-malignant tumors, and made up of newly formed blood vessels.

Owing to the imperfect closure of the posterior opening and slight retention place in the external auditory canal of this patient, I decided to complete the plastic operation, and therefore gave a third anesthetic in August, 1905, curetted the middle ear, and made microscopic examination of the scrapings. I found no evidence of any endotheliomatous structure.

CONCLUSIONS.

1. The great similarity of this case to a malignant growth, both clinically and pathologically, was responsible for my doing the radical operation.
2. Other tumors besides inflammatory may arise in the middle ear.
3. That there may be a possible relation between the bleeding tendency (hemophilia) and the growth of this tumor, the history of free bleeding of the patient and her sister would be suggestive.

Case 2. True myxoma of the middle ear. I merely wish to place this case on record, because I was of the opinion that this condition was a common one, until I looked up the literature in connection with tumors of the middle ear. Goerke makes the state-

ment that he has never found such a condition in the many hundred sections of ear tumors examined, and other men state that this condition is very rare. I will not read the complete history of the case, but simply say that the diagnosis was a polypoid growth of the middle ear. There is nothing of interest in the clinical phase of this case, and the course was that of an ordinary ear polyp. The microscopic slides are here for your examination. The diagnosis was verified by the examination of Dr. Evans, of the Columbus Medical Laboratory.

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The Use of Alcoholic Solutions of Cocaine Hydrochlorate in Oto-Rhinology—M. CORNET, of Constantinople—*Rev. Hebd. de Laryng., d'Otol. et de Rhinol.*, Sept. 10, 1904.

At the Seventh International Congress of Otology held at Bordeaux, an interesting paper was present by Cornet, of Constantinople, on the uses of cocaine hydrochlorate in alcohol solution (alcohol at 60 degrees). He believes that better effects can be obtained by the alcoholic solution, and that in general a more diluted solution may be used, a valuable consideration in view of the possible danger of cocaine. The alcoholic solution acts more rapidly than the aqueous. The burning sensation from the application disappears at the end of a certain time, and this indicates that anaesthesia has been obtained. Its action is also useful in anaesthesia of the tympanic membrane. Before applying the alcoholic solution to the nose, a weak aqueous solution should be used, otherwise the burning due to the alcohol is exceedingly disagreeable. At the end of a minute the alcoholic solution may be applied preferably by a tampon of cotton soaked with 1 to 30 per cent solution. SCHEPPEGRELL.

ACUTE EUSTACHIAN SALPINGITIS.*

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The aetiology of Acute Eustachian Salpingitis is to be considered under two heads: predisposing and exciting. The chief *predisposing* causes are: impaired general health, disordered gastric or intestinal digestion, pre-existing lesions of the nose and naso-pharynx, adenoids, middle ear catarrh, hypertrophy of the faucial tonsils, rickets, gout, lithaemia, hot and insufficiently ventilated rooms, improper dressing, and failure in the use of ordinary judgment in eating, drinking, bathing and exercise.

Among the more common *exciting* causes are to be found: acute coryza, acute naso-pharyngitis, acute pharyngitis, diphtheria, typhoid fever, hay fever (so-called), pertussis, the exanthemata, damp underwear, and chilling of the cutaneous surfaces.

Among the less common *exciting* causes are: acute articular rheumatism, syphilis, the accidental introduction into the Eustachian tube of either fluid or solid bodies, external injury or that due to the passage of bougies, nasal sepsis, and again adenoids.

In his work on Diseases of the Ear, Gruber makes the statement that "pathological changes peculiar to the organ of hearing have no existence; and that there can be, therefore, no justification at all for any *special* pathology of the ear." He further states that "As, however, the most diverse tissue-elements contribute towards its formation, and diseases of the neighboring structures exercise great influence upon its function, an accurate acquaintance with such diseases must be gained. The fact also that the ear is not rarely affected by diseases of organs standing in no direct anatomical connection with it, emphasizes the need for a familiar acquaintance with general pathology." While these statements are perfectly true as comprising a general enunciation, it is more the habit of the American mind to proceed from the general to the particular. Because of tubal continuity it would not be considered *quite* the right thing to give the pathology of proctitis if one should be asked for that of gastro-duodenitis. The gall-bladder and labyrinth both contain fluid, yet no one will contend that the most perfect knowledge of gall-stones will help in assigning a cause to a vertigo. If, then,

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we are to consider the Eustachian tube as an entity, even though it be a part of another organ, we must consider it as such and give to it the consideration which so important a structure deserves.

The mucous membrane of the normal tube is lined with cylindrical epithelium except in its cartilaginous portion where the epithelium becomes ciliated, the direction of the ciliary movement being towards the pharynx. Salpingitis in its mildest form may be a simple hyperaemia of the mucous membrane of the tube: or, a mild inflammation may follow the venous engorgement, attended by a slight swelling and diminution of the tubal lumen. With the involvement of the submucous layer the increased pressure results in a more or less complete stenosis and in a transudation of the fluid elements of the blood, the viscid exudate containing quantities of ciliated epithelial cells and leucocytes. Plugs of mucus of varying consistency sometimes occupy the lumen of the entire tube, although the occlusion caused by these masses is more often found in the cartilaginous tube. The gland-follicles are engorged and enlarged, giving a granular appearance to the tubal lips. Other pathological conditions to be considered are those of the middle ear resulting from the tubal stenosis. Here the rapid absorption of the contained air results in a diminished atmospheric pressure, while the same force acting from without drives the drum inwards and with it the ossicular chain. Should this condition remain unrelieved, adhesions form between the promontory and the *membrana tympani* at its point of least resistance.

The symptoms of Acute Eustachian Salpingitis vary in degree with the intensity of the attack. If mild, the affected ear becomes suddenly stuffy and stopped-up. To relieve the sensation of occlusion, the patient resorts to various devices such as exhausting the air in the auditory canal with his finger, swallowing, yawning, and a lateral movement of the jaw. Not infrequently there will be experienced a stiff, numb sensation involving the whole side of the head. Should the tubal stenosis last more than a few hours deafness and tinnitus aurium, varying in intensity according to the severity and duration of the attack, will almost invariably be present. The subjective sounds may be out of all proportion to the deafness, no complaint of which may be made by the patient, and consist of high-pitched, singing or squeaking noises. Sensations of pain are usually complained of, referred to the upper part of the pharynx, the larynx, the root of the tongue, to the tonsil and radiating to the ear, and to the side of the neck over the course of the tube. Instead of pain there may exist a sensation of a foreign body in the pharynx or

larynx or at the root of the tongue. Another symptom nearly always complained of is autophony. In those cases where the inward displacement of the membrana tympani and ossicles is very pronounced vertigo is quite apt to obtain, and in cases which have resisted treatment for some time aprosexia is not uncommon.

In making a diagnosis it may be well to suggest the importance of avoiding the error into which a young aurist will sometimes fall, viz.: the immediate reduction of the inflamed nasal tissues, a condition obtaining in most cases of acute Eustachian salpingitis. Such reduction should never be made until the rhinoscopic mirror has been used and the M. T. inspected.

The nasal mucous membrane will be found more or less acutely congested, boggy with a watery infiltration, turgescent, and the passage more or less occluded. In most cases there will be marked fullness, perhaps redness, of the faucial tissues, and occasionally a mild oedema of the soft palate and uvula. The rhinoscopic mirror will show a pronounced congestion of the tubo-pharyngeal eminence with more or less closure of the tubal entrance. An exudate of varying consistency will frequently occupy the tubal orifice in severe cases which have remained untreated for several days. If adenoids are present they will be swollen and congested, with, stringy mucus occupying the interstices between the masses. If lymphoid tissue is not present the naso-pharyngeal vault will be congested and dry, or moist, according to the stage of the disease.

On inspecting the M. T. it will be noticed that the whole lower two-thirds of the membrane is greatly sunken and the cone of light displaced. This displacement will vary according to the degree to which the drum is indrawn. If the retraction be absolute the cone of light may be absent altogether; if only partial, the light reflex will be seen occupying a position somewhat higher than the normal. The malleus handle will be seen foreshortened, its tip being in more or less close apposition to the internal tympanic wall. In severe cases the neck of the malleus will be outlined by the closely clinging drum membrane, the short process being projected outward as a well-defined white knob. The anterior fold of the M. T. will usually look stretched and wrinkled, the posterior fold exaggerated, and the whole membrana vibrans so thin that through it may be seen the lining membrane of the uncongested inner tympanic wall, together with parts of the incus and stapes. As Dench so tersely puts it, "the physical appearances are due entirely to the diminution of atmospheric pressure within the tympanic cavity, this region itself being unaffected."

If the surgeon desires to be thorough in his diagnosis he will now proceed to make a functional examination of the aural conditions obtaining in his patient. After finding that hearing is reduced for the watch, acoumeter, and residual whisper, a condition which he naturally expects to encounter, he is now confronted by such positive evidence of labyrinthine disease (a marked reduction of the upper tone limit), that, engrossed by this new turn of affairs, he is apt to lose sight, for the moment, of the physical conditions which have already enabled him, probably, to determine the character of the disease under investigation. Should he ask himself at this juncture whether this is an "error of the mind" or an actual labyrinthine lesion, he will see, after a moment's consideration, that the lesion is not only real but the only condition that could be expected, from a mechanical point of view, as a result of the profound displacement of the ossicular chain. He now understands that the tinnitus, and perhaps vertigo, of which the patient has complained is due to the inward excursion of the stapedial footplate which has pressed upon the endolymph and violated the sanctity and integrity of the delicate structures guarded and bathed by the labyrinthine fluid. If the labyrinthine disturbance is, however, of less degree, it will usually be found, in a well-defined case under 40 or 45 years of age, that there is a raising of the lower and a lowering of the upper tone limits, the degree of each depending upon the acuteness and severity of the attack, as well as upon the length of time the disease has existed and the extent of the stapedial incursion. Rinné will be found negative for the lower notes, usually up to C natural, and then a reduced positive, varying to positive according to the degree of pressure. If the disease is unilateral Weber will be found positive.

The tuning-fork tests will be of less value, however, in patients over 45 years of age owing to the altered conditions of bone-conduction which then obtain. Another exception to be noted is that due to hyperaesthesia of the auditory nerve, which, according to Dench, may be produced by a sudden increase of labyrinthine pressure in sudden and complete closure of the tube. This author claims that "when the auditory nerve is in a condition of hyperaesthesia the perception of low tones is well preserved, and it may happen that the lower tone limit is not elevated to the degree which we should expect to find in sudden and complete closure of the Eustachian tube."

Acute Eustachian Salpingitis is to be differentiated from (a) Acute Tubo-Tympanic Congestion, and (b) Acute Otitis Media, the

history of the case and the physical conditions obtaining in the nose, naso-pharynx and tube, together with the appearance of the M. T. precluding any possibility of mistaking the affection for acute labyrinthine disease.

In Acute Tubo-Tympanic Congestion the patient complains of pain rather than the stuffy feeling experienced in acute salpingitis. There is impairment of audition but it is not so pronounced nor so sudden in its onset as in salpingitis. Again, there is usually a small amount of fluid in the middle ear cavity, air-bubbles being seen through the drum membrane on auto or other inflation, the air producing a crackling sound as it passes through the fluid. The M. T. is either a dull white or a pinkish white, the inferior segment showing a yellowish tinge if serum is present in the middle ear, and is only slightly retracted. The malleus handle is only moderately foreshortened and is somewhat rendered.

The findings of the functional examination are practically those of acute salpingitis and are thus of no value from a differential point of view.

In Acute Catarrhal Otitis Media there is at first a sensation of fullness and stuffiness in the ear, but this rapidly changes to a steadily increasing pain which ultimately becomes so severe that the patient complains of practically nothing else, even of the subjective noises which may be present. The diffused, pronounced redness of the M. T., together with the pain referred to, makes the diagnosis of this disease easily differentiated from that of Acute Eustachian Salpingitis.

Some authorities are prone to consider an attack of acute Eustachian salpingitis as of slight importance; others do not even mention it. It is true that a properly handled initial attack is devoid of special danger to the integrity of the ear, but it cannot be too forcibly impressed upon the patient that one attack predisposes him to another, a second to a third, a recurrence being certain if the disease is allowed to run its course and ultimately resulting in a permanent impairment of audition. It will not suffice that the patient may not be conscious, at the expiration of a few days of treatment, that he has any impairment of hearing. He must nevertheless be told, and in no compromising terms, that it will take several weeks to permanently restore the function of the ear. The constant dropping of water will wear away a stone. Likewise the stretching process to which the M. T. is subjected during each attack of acute Eustachian Salpingitis will deprive it of its elasticity to such an extent that it will stay stretched. The tensor tympani muscle, deprived of its

normal function as a result of its drifted anchorage, will become shortened, while the apposition of the tip of the malleus to the intratympanic wall will result in adhesive inflammation, the irritation thus produced involving the whole middle ear cavity in a chronic inflammation.

Treatment of Acute Eustachian Salpingitis includes the management of the present attack, attention to the exciting causes of the present attack, predisposing causes, and the prevention of recurrence of the disease. Since the opening of the Eustachian tube is to be accomplished before hearing can be restored, we must, if we are to use the catheter, not only reduce the engorged tissues but anaesthetize them sufficiently to make the operation painless. For this purpose a spray or swab of cocaine or eucaine must be used to open the nasal passages and the mouth of the tube. If the swelling is persistent adrenalin solution, applied either alone or added to the anaesthetic, will produce immediate ischaemia and shrinking of the parts. The nose is now sprayed gently but thoroughly with a warm alkaline antiseptic, *e. g.* a 20% solution of Glyco-Thymoline. The naso-pharynx should then be thoroughly cleared of its viscid secretions. This is accomplished, first by means of a single-tube DeVilbiss atomizer introduced through the inferior meatus; then by a post-nasal spray, using the double-tube DeVilbiss atomizer with reversible tip, the soft palate being gently retracted to facilitate the cleansing. This method is preferable to the use of the post-nasal syringe and will not, if care is used, produce the traumatism of the palate and pharyngeal walls which is more than apt to follow the use of the syringe. At this stage of the treatment it is frequently difficult, sometimes impossible, to use the rhinoscopic mirror for the purpose of further inspecting the condition of the tubal orifice. Should it be possible, and the tubal orifice is found occluded by a plug of mucus, it is best to remove it thoroughly before attempting inflation. The mouth of the tube being anaesthetized, a cotton-tipped applicator suitably bent and moistened with a 10% solution of alumol may be used to detach and wipe away the mucus. Should inspection be impossible, the catheter, gently introduced, will prove to be the best means of ascertaining the presence of mucus. Using the Dench apparatus, a gentle pressure of the bulb will produce coarse, rasping, bubbling sounds if thin or stringy mucus occupies the meatus or the canal itself. If the mucus be inspissated the impinging of the end of the catheter against it will prevent egress of air and no sound will be heard. To be sure that an oedema is not the cause of the obstruction, the tip

should be moved about gently while slight pressure is being applied to the bulb. If it is determined that the obstruction is due to a plug of inspissated mucus it may be removed in the manner already mentioned. If, on the other hand, fluid mucus is found, the catheter is left in position, the inflating apparatus detached from it and *gentle suction* used. Almost invariably it will be found that the mucus can be easily sucked into the catheter from which it can be forced, after withdrawal from the nose, by a blast of compressed air and received upon a bit of cotton or paper for preservation and future examination. So long as fluid mucus is found in the tube this procedure should be kept up, the introduction of the catheter, its withdrawal, and the management of its tip being conducted with the greatest care. Even a plug of gelatinous mucus lodged in the isthmus can thus be removed, the suction engaging it in the distal end of the catheter where the mass will be found on withdrawal. It has frequently been the writer's good fortune to so completely remove in this way the viscid mucous and muco-purulent secretions of the tube that the subsequent catheterization was a dream, a mild inflation serving to restore normal tympanic relations without producing, or increasing an existing, tinnitus or vertigo. It might be added that he has employed the same method with equal success in withdrawing comparatively large quantities of fluid from the cavity of the middle ear in tubo-tympanic congestion. Having now cleared the tube by means of the catheter it would be folly to substitute for it the Politzer bag to complete the inflation.

From the first the object has been to relieve the patient's deafness. This can be accomplished by only two methods, viz.: the Eustachian catheter, and Politzerization (or one of its equivalents). The great value of the former in the preliminary clearing of the tube having been so clearly demonstrated, the writer believes that the latter should be condemned except in the treatment of young children. True, it gives quick results, if, indeed, inflation is possible at all, but it is nevertheless true that the operation is always fraught with danger. During its performance the contents of the tube must necessarily be driven into the cavity of the middle ear. It is difficult, nay, impossible to accurately regulate the force required to open the tube, and hence a possibly infective mass is distributed broadcast within the tympanic cavity, while the impact of the blast of air cannot but produce a traumatism of the inflamed and contracted tubal walls and of the delicate middle ear structures. It is in this way, too, as instanced by increased tinnitus and vertigo, that more or less damage is done to the labyrinthine contents as the result of sudden

shock and pressure. It does not seem fair to subject a patient to the possible untoward results of such a forcible inflation by Politzerization. Enumerated, these are found to include: acute suppurative otitis media with its possible sequelae; chronic adhesive catarrhal otitis media; impaired integrity of the stapedius and tensor tympani muscles; stretching of an already weakened drum membrane, thus producing unequal vibrating areas should it have become adherent to the promontory; damage to the opposite ear either from trauma or infection or both; and last but not least, a permanent injury to Corti's rods or the membrana basilaris.

The writer feels warranted in making the statement that the first-mentioned of these results is only too common, an acute salpingitis being converted into an acute suppurative otitis media through the injudicious means taken to rapidly give the patient relief. Children too young to be amenable to catheterization must, of course, be Politzerized; but even in them we must realize that many a case of acute or chronic suppurative otitis media was primarily one of acute Eustachian salpingitis. As to the second of these results, viz.: chronic adhesive catarrhal otitis media, it may be said that non-infective viscid secretions or exudates thus driven into the cavity of the tympanum are not completely absorbable. The aqueous element having been absorbed, what becomes of the sticky residuum? Assuming its innocuousness, it is nevertheless a mechanical menace to the normal transmission and reception of external vibrations. Surrounding the ossicles and their articulations, reducing the mobilization of the stapedial foot-plate by its very adhesiveness, diminishing by its contracting force and by its weight the outward excursion of the membrane of the round window, an excursion so necessary to labyrinthine equilibrium, this residuum ultimately becomes organized into a low grade tissue and a pathological condition now obtains in which an insistent, insidious process of inflammation adds new material to the recently organized exudate. Thus the foregoing physical conditions are exaggerated and the transmission of sound more and more impeded by subsequent repeated accretions and contractions incidental to the now chronic hyperplasia. The writer's objection to Politzerization as a routine primary procedure is so pronounced that it has seemed necessary to establish his position by thus reviewing its probable consequences. In so doing he is entirely cognizant of the fact that several authorities advise Politzerization in the treatment of this disease. In fact one of them, Bishop, goes so far as to emphatically advise against the use of the catheter, claiming that "it increases the irritation of the inflamed tube." If

it were always possible to see and treat these cases at their very inception and with the tube perfectly dry, it is quite probable that no material harm would result from the "gentle and gradual Politzerization" which he advises, but in the writer's experience these cases have never presented themselves until the process was well established. Having decided, then, upon the use of the silver catheter, it is only necessary to say that the actual induction of the restoration of the tympanic membrane to its normal position should be proceeded with in a manner so cautious and gentle as not to produce the slightest traumatism of the tube, the drum membrane, the intra-tympanic structures or the labyrinth. Thus tinnitus and vertigo are relieved by the gradual release from pressure of the labyrinthine fluid, the intra-tympanic muscles allowed to functionate normally, the drum membrane and ossicles restored to their proper relations to one another and to adjacent structures, and more or less normal hearing ensues. It occasionally happens that with no inspissated plug of mucus occluding the tube the constriction due to oedema or engorgement is so great as to make it impossible to perform inflation by *any* method. Should this condition be present it will be found that a Dench bougie of No. 5 piano wire, tipped with a small pledge of cotton, will serve a useful purpose if moistened with a 1-1000 adrenalin solution, introduced through the catheter and gently pressed against the engorged tissues. In about a minute inflation can be performed, especially if the patient be directed to swallow at the same moment the bulb is compressed. It is in these cases of total obstruction that the greatest caution should be used in inflation, since the introduction of even the smallest stream of air under moderate compression of the bulb will not infrequently increase the existing labyrinthine pressure and produce a severe vertigo, great nausea and vomiting, and a collapse from which it takes hours to recover. For this reason it is advisable to so regulate the force of the entering stream of air that it will merely *trickle* in, thus providing for the gradual restoration of labyrinthine equilibrium while abolishing the intra-tympanic vacuum. Inflation having been satisfactorily performed, an astringent is to be applied to the mouth of the tube with a cotton-tipped carrier. Argyrol in a solution varying in strength according to the severity of the inflammation (*i. e.* from 20% to 50%) will furnish an ideal medicament. The act of swallowing will now aid in the distribution of the argyrol throughout the tube in so thin a stratum as not to materially lessen its lumen and will exert its astringent action for some hours. If the nasopharyngeal process has been an acute one a 50% solution of the same

medicine is then painted over the entire nose-pharynx as well as over the oro-pharynx and tonsillar regions should they present evidence of inflammation. A 5% solution may even be sprayed into the nose if the surgeon will remember to caution his patient to use a 1-1000 solution of bichloride to decolorize the stains on subsequently used handkerchiefs.

It has usually been considered necessary to instruct the patient to use various aqueous or oil sprays and medicated vapors containing a variety of drugs such as tinct. benzoin comp., carbolic acid, menthol, camphor, iodine, eucalyptus and other oils. While the inhalation of a warm, bland vapor from a sterilized petroleum product into which a *very small* quantity of one of these drugs has been incorporated may be ordered for home treatment, it is doubtful if any particular benefit, except moral, is derived from its use in *acute* cases. Practically all these drugs are too stimulating, even in weak solutions, to be used on an acutely inflamed membrane. Later on, if the disease has not succumbed to astringent and detergent or other treatment, it is good medicine to promote endosmosis by vascularizing the atonic submucous tissues with one or more of the above-mentioned stimulants. It is then, and only then, that the introduction of such a vapor into the nose and Eustachian tubes can be productive of any real good. Instead of a warm vapor the writer has found that the use of superheated air has been of benefit in certain cases which did not prove amenable to other treatment. The temperature required is that of the patient's toleration, care being used to avoid destruction of the nasal mucous membrane. A fibre catheter is the ideal instrument for this purpose, but a silver catheter wound with a strip of compressed cotton may be used. An air pressure of ten pounds through an appropriate heating apparatus will generally prove sufficient to take care of the moisture in the tube and will not force mucus into the middle ear cavity. It is not to be assumed that the degree of heat used is sufficiently great to actually destroy the bacteria present in the tube. On the contrary it is by its stimulation that a phagocytosis is set up and the microphages, assisted by the opsonins of the blood plasma, become the avengers of the outraged tissues.

Another method of stimulation of undoubted value is that of mechanical vibration of the superior cervical ganglion whose ascending branch gives off an external branch to form the carotid plexus. A branch of this plexus joins a branch of the tympanic which supplies the mucous membrane of the tympanum and the Eustachian tube. To vibrate this ganglion pressure should be ap-

plied at the upper part of the anterior border of the sterno-cleido-mastoid muscle. Indirectly the superior cervical may be stimulated through the spinal connection at the upper cervical and also through the middle or inferior ganglion by vibrating lower in the neck.

As to internal medication camphor, aconite, belladonna and quinine have some therapeutic merit; but better results may be obtained by the administration of minute repeated doses of gelsemium. In the initial stage the greatest benefit to be derived from treatment, aside from overcoming the deafness and subjective noises, will be obtained, however, not from dosing a symptom, but from a proper understanding of the underlying causes which have made these symptoms possible. Therein lies the crux of the whole matter and therefore our energies should be directed towards the elimination of pathogenic products and the restoration of normal resistance. Recognizing the fact that the special activity of the bacteria immediately responsible for the present state of affairs has not been brought about without adequate cause, it becomes necessary to institute a thorough search for those systemic conditions producing the lowered vitality responsible for the present bactericidal victory.

It is to be assumed that the treatment of obstructions of the nose and naso-pharynx, of lesions resulting from traumatism of the tube itself through douching, instrumentation, or the introduction of foreign bodies, together with the prophylaxis to be observed in the exanthemata, need not be here particularized since such treatment scarcely comes within the scope of this paper. Neither is it pertinent to refer to the treatment of the conditions obtaining as a result of lues, cancer, or sepsis. We will usually find, however, that the goal of our therapeutic effort lies in the correction of an auto-intoxication resulting from a faulty metabolism and defective elimination by the skin, kidneys and bowels. Prompt flushing of these sewers miraculously terminates the progress of a great many diseases and none more quickly than the one under consideration. When possible, it is advisable for the first few days to treat the patient at his home where special diet, equal temperature and toilet necessities are assured. During this time other functional disturbances may be detected and prescribed for and the patient instructed in dietetics, exercise and personal hygiene according to his requirements.

119 Main St.

A CONTRIBUTION TO THE TREATMENT OF THE DISEASED ATTIC.*

BY F. C. HOTZ, M.D., CHICAGO.

Among the indications for the radical operation, the stubbornness of the aural discharge occupies a prominent place. The advocates of this operation think it should be resorted to if the treatment of a chronic otorrhea does not yield any decided results within three months. This is a very elastic and untrustworthy indication; for there is no uniformity in the treatment of chronic otorrhées and where one method has failed it cannot be said that another treatment might not have been successful. I am convinced that under this indication the radical operation is often performed when it could have been avoided.

Let me relate a few observations in support of my opinion. Last summer I witnessed a radical operation in an European ear clinic. It was a case of a moderate otorrhea of four years duration, which had been treated with negative results by a country physician during the last six months. Although the aurist admitted that he knew nothing about the ability and the treatment of the physician who had treated the case, he decided at once upon the radical operation because the case had been treated six months and the otorrhea was not cured! The operation disclosed an absolutely healthy mastoid, a clean and perfectly healthy antrum and only a mass of granulations in the attic, the bony walls of which were perfectly sound; and so were also the walls of the tympanic cavity. Was it necessary, I ask, in this case to chop away the mastoid, the posterior wall of the meatus and the aditus to remove these granulations from the attic? Was it not a hasty and unwarranted decision to operate for the simple reason that the case had not been improved by the treatment of somebody?

Two years ago a very strange thing happened to me. Within two weeks I was consulted by three patients who had been treated by the same aurist and were urgently advised to submit to the radical operation because the condition of their ears had not improved under his treatment. In the one case the operation was to be performed on the next day. In this case as well as in the other two cases there

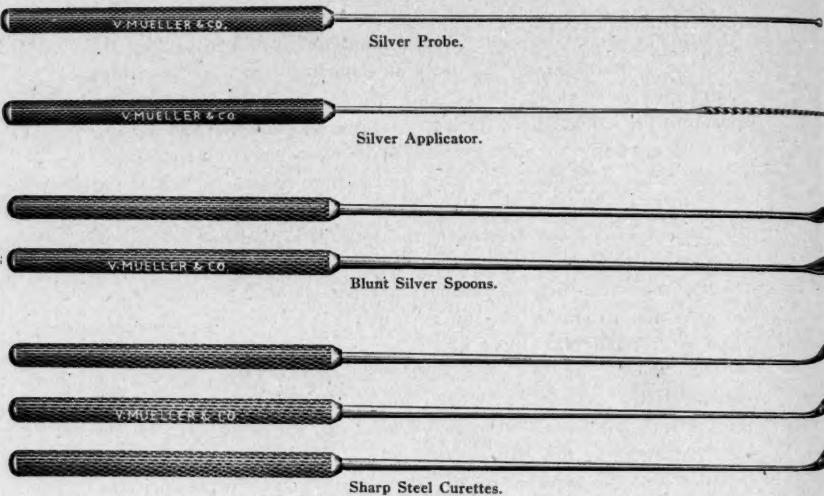
* Read before the Tenth Annual Meeting of the American Academy of Ophthalmology and Oto-Laryngology, held at Buffalo, September 14, 15 and 16, 1905.

were no head symptoms nor any evidence of mastoid involvement during the entire course of the disease. The membrana tympani was destroyed, malleus and incus absent, the walls of the tympanic cavity were smooth and pale, no caries or necrosis; only a moderate discharge of an inoffensive mucus evidently coming down from the attic. And this space was filled with soft, easily bleeding granulations. Asked for my opinion as to the necessity of an operation I said I did not approve of it, because I considered the disease curable without it. The first case was cured in four weeks, the second in six weeks; the third patient did not return. It interested me, of course, to find out something about the treatment upon the failure of which the aurist had based his urgent advice for the operation. And this is what I learned: The patients were told to syringe the ears every morning and to drop in some solution; once in three weeks they went to the doctor who—they told me—did nothing but look into the ear and told them to continue the same treatment.

Could anything but negative results be expected from such treatment? Indeed, I know no more indifferent treatment this aurist could have employed if he intended to demonstrate to his patients the uselessness of any treatment and to gain a plausible pretext to recommend the radical operation. For success in the treatment of chronic otorrhoeas depends chiefly and pre-eminently on the careful personal attention the aurist gives to his cases. This applies with particular force to those cases in which the attic is the source of the persistent discharge. Here the home treatment by syringing, gauze drains and the instillations of this or that solution is absolutely valueless; the injections do not wash out the attic, the gauze strips do not drain it and the solutions dropped into the external meatus do not reach it. But even if the medicines we can intrust to the patients reached the attic they would be inert because they are ineffective on granulations, polyps, cholesteatomatous masses and caries, the morbid conditions usually found in chronic attic affections.

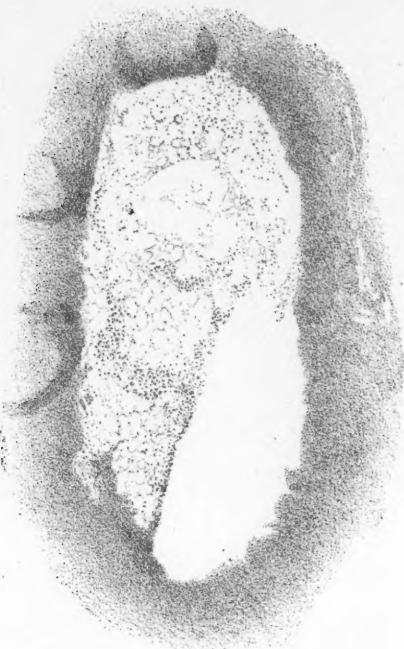
These conditions must be attacked directly and this can be done successfully only with instruments in the hands of an expert. The necessary instruments are: 1. A fine silver probe the end of which can be bent short to any angle so that we can palpate with it any point of the walls and the roof of the attic: 2. Applicators of the pattern here shown made of sterling silver, the handle corrugated so that the lightest touch of the fingers can control its movements. The stem measures $2\frac{1}{2}$ inches and ends in a cork screw spiral $\frac{3}{4}$ inch long, around which cotton can be wound securely and

yet can be taken off very easily. The spiral can be bent like the probe to any suitable angle so that medicines can be carried by it to any point of the attic. 3. Small spoons like cataract spoons made of the same material and with the same handle and steam as the applicators. As the edges of these spoons are not sharp but smooth, inspissated matter and cholesteatomatous masses can be scooped out without any possible injury to the liming membrane of the attic. 4. An attic syringe for washing out the attic after the scooping operation. 5. Small steel curettes with a flexible stem of



malleable iron so that they can be set at the desired angle for scraping carious walls or removing large granulation buttons.

To treat the diseased attic successfully we must of course gain free access to it. If there is only a small fistulous opening in Shrapnell's membrane this must be sufficiently enlarged by excising a portion of that membrane; but the removal of the osseous margin is not necessary. If the malleus and incus are still present and necrosed they should be removed at once. The attic can then be thoroughly explored with the probe to ascertain its condition. For the removal of cholesteatomatous masses we use the silver spoons. The work is done more thoroughly and rapidly than with the attic syringe the



Cavity or false cyst in the lymphoid tissue of the Naso-Pharynx due to fatty degeneration.

Owing to imperfection in the reproduction, the outline of the fat cells are not clearly indicated.

To illustrate article of Dr. Jonathan Wright in **THE LARYNGOSCOPE** for September, 1905, p. 682: "Cysts in Lymphoid Tissue, an Exceptional Manifestation of Tonsillar Retrogression."

current of which is not strong enough to dislodge firmly impacted masses. The syringe is used only for the final washing out.

Large granulation buttons and polyps are cut off with the curette. The presence of small granulations which cannot be seen directly can be detected and their site located by means of the applicator. As they bleed very easily the cotton wound around the spiral of the applicator becomes blood-stained when it rubs over such granulations; if we pass the spiral straight up to the roof and on withdrawing it find blood on the tip of the cotton we know there are granulations at the roof; if the concave side of the spiral is blood stained we know granulations cover the attic surface of Shrapnell's membrane and the adjoining osseous margin. In the same way we can ascertain the presence or absence of granulations at the anterior or posterior wall. The granulations thus located can then be treated directly. For this purpose a little cotton is tightly wound around the spiral and dipped in deliquesced chromic acid; the spiral is given the proper bend so that when passed into the attic it brings the chromic acid in direct contact with the granulations. Under these applications repeated every two or three days the granulations quickly disappear and often the discharge ceases with their disappearance. If it continues, or we have to deal with a chronic discharge without granulations from the beginning or after the removal of cholesteatomatous masses we possess in the flexible applicator an excellent instrument to apply directly and thoroughly over the whole diseased lining protargol, silver nitrate, camphoroxol or whatever medicine in our judgment is called for by the condition of the attic.

If this treatment is carried out religiously attic diseases do not prove as rebellious as they are generally believed to be. To be sure it takes a great deal of time for the patient to attend regularly to this treatment; but who would not be willing to make this sacrifice rather than to submit to a formidable operation which leaves an ugly disfigurement, requires a long time for the after treatment, and after all does not always insure a permanent cure?

34 Washington St.

INTRANASAL PRESSURE A CAUSE OF HEADACHES, DIPLOPIA AND OTHER OCULAR DISTURBANCES.*

BY KATE WYLIE BALDWIN, M.D., PHILADELPHIA, PA.

Some years ago I was very forcibly impressed by the possible far-reaching reflexes from intranasal obstruction or pressure even, when nasal respiration remained free. The general development may be materially modified,—to such a degree as to cause serious anxiety. Frequently the nose is considered a possible cause, only after all other means of relief have been exhausted. Such desperate cases have formed a very large percentage of those coming under my observation. I long since decided that continuity of tissue; direct connection of nerve and blood supply was not an essential. Some quite insignificant injury to foot or hand may cause a severe headache, even though the nerve and blood supply is quite distinct. The perfect human being is more than an accurately adjusted machine in which the loss or loosing of a small screw may prevent the perfect running of the whole.

The fact that the removal of septal spurs or ridges, polypi, etc., has relieved severe headaches and pathological conditions in other parts of the body led me to investigate other causes of pressure in obstinate headache and eye troubles, cases in which neither spurs, ridges nor deflected septum could be blamed. In such cases my attention was first called to the fact that when the trouble is unilateral, or nearly so, the nasal tissues of the corresponding side are hypersensitive. The most careful introduction of the nasal speculum may be almost intolerable; while its use in the opposite side is not abnormally unpleasant. Thorough investigation usually shows a middle turbinate out of proportion to the space and consequently making pressure either on septum or outer wall. The touching of some especially close point will produce or increase the pain suffered.

When these conditions show at the first examination, I usually make several, having the patient report when free from the discomfort, also when it is severe. If a very careful contraction of all the soft tissues relieves the pain, while a touching of the special pressure points brings it on, I am assured of the connection between pain and pressure. Usually the patient is convinced, even if at first he has been skeptical. A rough examination is never admis-

* Read before the Tenth Annual Meeting of the American Academy of Ophthalmology and Oto-Laryngology, held at Buffalo, September 14, 15 and 16, 1905.

sible, neither is it necessary, and often would be the cause of failure to relieve, as the cases would not be well chosen, and nothing but disappointment follow. Keeping this constantly in mind, I have never failed to secure partial, if not complete relief, and the patients have been entirely willing to attribute the improved condition to the operation.

Some of our most careful observers say that an unpleasant dryness of throat and nose is prone to follow middle turbinectomy. My cases have not proved this statement true.

The following cases I have selected to report because they yielded to operation after much and long continued treatment had failed to give any relief:

Case No. 1. Katie J.—37 years old. Had never breathed through the nose. Always has had severe headaches, frontal and temporal, and a pain at the base of the nose, which seemed connected with that which was the hardest to endure, a "drawing", "clutching" pain in the occipital region, much increased by the recumbent position. Had glasses, but they did not relieve either the head or 'eyes. For three years had not been able to work, slept but little and ate less—often taking nothing but tea. For two years the pain had been constant, she being obliged to sit up night and day, either in a chair or with many pillows in bed. In fact she could seldom be induced to go to bed. In September, 1904, she was persuaded to consult Dr. Baldwin, of Newport, R. I., and I saw her the same day. She was ready to consent to anything. "Take my head off. Do anything that will relieve this pain."

Examination showed a narrow nose. Pressure at the base increased the pain, especially that in the occipital region. Inferior turbinates in fairly good condition. Both middles tremendously large and very firm. With such a history there was no question as to the advisability of operating. The next day I did a double middle turbinectomy, being able to remove only about three-fourths of the left one. As I was about leaving Newport, it was impossible to do more until this summer.

She stood the operation remarkably well and in less than an hour exclaimed that all the pain in the back of the head was gone. I supposed the anesthetic was the cause but that pain never returned. The next night she was able to go to bed and lie with but two pillows. Now one year from the operation, her general condition is much improved. Still she is not a well woman, except by comparison. She and her family feel that there has been a very great change. In August, the patient suggested that she was able to return to work. In the past year she has really done many things.

It is not my purpose to report any but middle turbinal cases in this paper, but the following is of interest in connection with *Case I*:

A young woman of nineteen was relieved completely of a severe ache in the back of the neck, extending to the lumbar region, by the removal of a large septal spur and pharyngeal tonsil. It is now five years since the operation and there has been no return of the discomfort.

Case No. II. Dr. B.—for years had the feeling that the left eye was a lame member, not to be used unless necessary. The recumbent position caused the eye to become congested and muddy looking. About ten years ago a very marked episcleritis developed. Atropine was used continuously for three months. Nasal mucous membrane was very sensitive to cold, which caused pain and increased secretion. Up to eighteen years of age had much dull headache.

Examination showed extreme sensitiveness. The most careful introduction of the speculum gave much discomfort. Several times the patient left the chair. Any nasal douche was required very warm; if a little cool it caused pain and I was requested to increase the temperature. The left middle turbinate was large, anterior end soft and boggy. Nine years ago this summer I removed about three-fourths of it. Local anesthesia made the operation possible but far from painless.

Since the operation the nose is not abnormally sensitive to examination, the left eye has given no trouble in doing its share of the work and is no longer muddy and congested.

Case No. III.—A sturdy-looking German woman of thirty-two. Had severe frontal and temporal headaches for two years, increasing in frequency and severity, also pain in eyes, and obstructed nasal respiration.

Examination showed, inferior turbinates in fairly good condition, middle turbinates large. The septum was slightly deflected to the right, making operation on the right middle difficult; but as the pain commenced and was more severe on that side, this was the turbinate to first remove.

It was one of the most difficult turbinectomies I have ever done, the bleeding being free even from the puncture of the needle in injecting the anesthetic. More than the usual amount of discomfort followed the operation; at least the patient made more than the usual complaint. For a week or ten days she did not admit that the head was any better. In less than three weeks she was free from headache and could use her eyes without discomfort. Six months later there had been no return of pain.

Case No. IV.—November, 1904. Dr. T.—From early childhood had severe periodic headaches, giving sensation as of a band around the base of the brain, pains shooting to the circumference as if head would fly in pieces. Extreme prostration, vomiting always severe, and sometimes diarrhoea. Fever always present, at times high, 102-103° F. Paroxysms varied greatly as to severity; at times lasting only a few hours, again three or four days. Delirium present, on more than one occasion lasting several days. Post-nasal discharge constant. A profuse serum discharge demanded much attention. Frequent micturition very persistent. No eye trouble. Eight months ago paroxysms began coming at every menstrual period with increasing severity. General health became greatly impaired. Digestion about as usual. Patient ready to cry on the slightest or even no provocation.

There was no sign of polypi by anterior examination, but post-rhinoscopy showed them in both choanae. The inferior turbinates were much congested; the middle turbinates very large and they could not be contracted sufficiently to bring the polypi into view. There was a history of one from each side having been removed within two months. The general condition, the extreme pain and profuse serum discharge made the patient anxious for relief. When I remarked that the removal of the middle turbinates was supposed to cause dryness of throat and nose. The answer was: "By all means, remove them then." As the left was causing more pressure we decided that it should be removed first—and the other if necessary. I repeatedly contracted the right middle turbinate and removed practically all of the left one, and later several good-size polypi. As some were removed, others came into view and were removed with no other anesthetic than adrenalin. The patient was so sensitive to cocaine I could not use it without unpleasant symptoms and with the use of adrenalin there was little pain. All conditions quickly improved and the doctor was able to do a hard winter's work, but had pneumonia in the spring. There has no unpleasant dryness resulted and Doctor T. is ready to have the right middle turbinate removed at any time I think best. I shall keep the case under observation and operate only if symptoms develop.

Report of September 2nd, 1905: "I am happy that I can speak of it as in the past. I hate to think of the 'circus' I was having this time last year. I have had no headache since the operation. Nasal discharge greatly lessened, micturition normal. General health immensely improved."

Case No. V. August, 1903. Miss P.—Age, twenty-seven, seamstress. Had severe headaches and trouble with eyes for two years. Pain constant in the ball of left eye and at inner angle, extending down the nose, at times also in the right eye. Severe frontal headaches, extending to left temple and mastoid region, always worse at the menstrual period, increased by use of eyes. Much dizziness.

In 1901 the following glasses were prescribed for constant use:

O. D. + 1.25 = + 0.25 cyl. ax. 180°

O. S. + 3.25.

In the two years they had made no change in the conditions, except in the dizziness which improved very much. General health always good until these head and eye symptoms appeared. When she came under my observation in 1903 she was much below par in every way, and this in spite of constant medical care. All symptoms were increasing and for a year she had not been able to use the eyes for anything without aggravating the pain in both head and eyes, especially on left side.

I had examined her nose in 1902 but did not feel that operation was justifiable. In August, 1903, her physician requested that I again see her. Examination showed extreme sensitiveness of nasal mucous membrane, especially in the left side. Middle turbinates very large; left causing much pressure. Examination increased the pain. Careful contraction of all the tissues gave some relief. Repeated examination gave the same result and operation was decided upon. The left middle turbinate was removed and further operation was not indicated as the headaches promptly disappeared and the eyes gradually improved as did the general health, the patient taking up her household duties, reading and sewing included.

In 1904 she reported as all right and doing just about as she pleased. In August, 1905, the young woman was able to tell me that since March she had been sewing in the shop, working as many hours as anyone. She was able to read and sew evenings if she wished, with no discomfort, except for an occasional very slight headache at the onset of her period. No unpleasant dryness of throat has developed.

Case No. VI.—In the fall of 1903, Dr. F.—came to the Polyclinic Hospital, Philadelphia, to do special work in eye, ear, nose and throat. After seeing several cases in which middle turbinectomy cured severe pain; one of his associates suggested that probably he had a large middle turbinate and that it was the cause of the pain he suffered. He was willing but not anxious to be used for clinic demonstration. Later he came to the office and I made an examina-

tion, which convinced him that in all reason the nasal condition had something to do with the pain and he decided to take the chances of an operation. The history was of a rather marked exophoria which caused severe pain in the eye but never real diplopia. When eighteen years old he began having every day (from about ten to eleven a. m.) severe pain in the left temple extending into the left eye and the two left upper bicupid teeth. The teeth were both sound, but extracted with no effect on the pain. The pain was always attended by a feeling of fullness in the left side of nose with a constant desire to clear by blowing. In about an hour the pain would get better and the nose from being dry would become a little moist. The appearance of the moisture always meant an end of the neuralgia for the time. There was never any real pus in the discharge, which was a clear fluid very small in quantity. The fullness in the nose disappeared with the appearance of the discharge and soon the pain would leave. The coal-tar products relieved the pain, but it would usually get well of itself in from one to two hours. Quinine, tonics and arsenic did no good. He was unable to work while the pain lasted and at times it became so severe that chloroform was resorted to. Exposure to drafts brought it on at any time. Damp weather usually made it worse. In the dry fall, he was often free from pain for months. It was not a headache; it was a pain in the temple, cheek, eye and teeth. Occasionally it appeared on both sides, but usually on the left only.

December 29th, 1903, I did a left middle turbinectomy. Adrenalin did not blanch the tissues and cocaine had no more effect on the pain than so much water. After using all I considered safe we resorted to chloroform anesthesia. The bleeding was unusually free. The middle portion of the nose was very narrow so that work on the middle turbinate was difficult. This case with some others about the same time made me feel that I must find some instrument not then known to me and I had made a small saw which has served me well in many cases, when the space was too narrow for scissors or forceps. In fact I now seldom use the scissors unless in a very roomy nose.

The doctor was much relieved. The last of January, 1904, he went abroad for six months of study. He had no pain except while in England where it rained all the time. The report from him in August last is: "Your turbinectomy did me much good. I am now practically entirely free from the pain."

Case No. VII. Miss B—. Twenty-three years old was referred by Dr. Getty, with the history of severe left-temporal and

frontal head-aches with discomfort in left ear; accompanied by marked diplopia, the left eye only being involved. The statement was that Dr. Getty and the general practitioner had exhausted their resources with little if any improvement. The patient was obliged to give up her work as a stenographer and in a general way was fast losing ground in consequence of the pain and worry.

There existed hypersensitive nasal mucous membrane especially of left side, and a very large left middle turbinate, examination of which increased the pain and caused much suffering for the remainder of the day. Teeth and throat in fairly good condition except for a moderately large pharyngeal tonsil.

The date for operation was arranged when some near relative in the profession desired that she see Dr. Samuel D. Risley, who was a personal friend in whose professional judgment he had great faith. Dr. Risley saw Miss B—— and it was decided that the salicylates should be pressed for at least two weeks, using larger doses than had previously been given. Dr. R. said by all means have the operation if Dr. Baldwin thought it necessary, but that he did not see how it could possibly benefit the eye. For over two weeks twenty or more grains of salicylates were taken three times a day, without the slightest benefit. It was then decided to go on with the operation. A left middle turbinectomy was done February 21st, 1904. The patient was pretty well "knocked out" by the operation but was able to come to the office, a distance of several miles, on the third day. At the time of operation the exophoria was 24° at 16.4 feet; five days after operation only 12° .

On April 30th the pharyngeal tonsil was removed. There was a gradual improvement in the eye, until finally it overcame 10° at 16.4 feet with vision in either eye 16/131. There was very little headache from the time of the first operation. When I left the city the first of July she was so much improved that her friends considered it quite wonderful and thought the case should be reported so he that runs may read.

Miss B—— reported the 5th of October, having been quite well all summer. Had been back at her work and did well until one day she was asked to do some unusual work in a very short time. She accomplished the work but it proved a too great nervous strain and her general condition suffered much and the eye to some extent. I found a postoperative synechia and a tiny bit of organized granulation tissue, removal of which was beneficial, and on November 15th she was able to overcome 10° at 16.4 feet with vision in either eye, with glasses, 16/131.

The following report came from Miss B— August 21st, 1905: "I now see very clearly. Can read an hour at a time without any bad effects. My nose and throat give me no trouble and I can conscientiously say that I am a well girl."

The following is Dr. Getty's full report of the eye conditions:

August 29, 1903. Has had pain over left eye for past week. Sees double when looking to the left.

Wearing O. D.—0.25 = + 1. cy. ax. 75° = 16/131.2.

O. S.—0.50 = + 1.25 cy. ax. 100° = 16/131.2.

Orthophoria with correction.

Ophthalmic examination:

Media clear. Discs round. Fundus normal. Both eyes.

Cum Homatropine.

O. D. 16/393—0.25 = + 1.25 cy. ax. 85° = 16/131

O. S. 16/74 —0.25 = 1.50 cy. ax. 100° = 16/131

Rx + 0.25 off Orthophoria

December 26, '03. Exophoria 15° at 16.4 ft.

Images on a level.

January 27, '04. Not able to rotate left eye beyond median line. Other movements correspond to right eye. Exophoria 24° at 16.4 ft.

February 26, '04. Exophoria 12° at 16.4 ft.

April 20, '04. Orthophoria at 1.64 ft. Patient still sees moving objects double, as trolley cars or people at a distance.

September 3, '04. Patient complains of not seeing clearly and at 3 ft. sees double images on a level and both distinct.

With comidation,

O. S. Vision 16/131.

O. D. Vision 16/164. Exophoria 3° at 16.4 ft.

September 2, '04. Exophoria 10° at 16.4 ft. with glasses. Has a swelling of upper lid of left eye, also pain in the eye. The ophthalmoscope showed no change in the eye ground.

November 15, '04. Overcame 10° at 16.4 feet.

Vision in either eye with glasses 16/131.

320 S. 11th St.

A NEW INSTRUMENT FOR MASTOID SURGERY.

BY W. SOHIER BRYANT, A.M., M.D., NEW YORK.

After much experimenting, this instrument has been selected from a long series of tools used by the wood carvers as the one which could add something useful to the armamentarium of the aural surgeon.

The instruments which have been much in vogue in mastoid work are the drill (now rarely used), the chisel and gouge, the curette and the rongeur. But the chisel and gouge and curette leave something to be desired in their usefulness. The chisel and gouge require to be driven by a mallet, the blows of which cannot but be detrimental to the patient's central nervous system. These instruments also occasionally slip, especially when in the hands of the less



Front Bent Gouge.

experienced, inflicting unfortunate injuries, while the curette makes extremely slow progress in hard bone.

My front-bent gouge seems to overcome these deficiencies. This instrument saves time over the curette when working in dense bone, thereby shortening the duration of the operation and conserving the strength of the patient. It removes bone more safely than the chisel or gouge, at the same time relieving the patient of the objectionable mallet blows on the head, which materially hastens the convalescence, while at the same time it relieves the mind of the operator to no small degree by the reduction of the danger of an unfortunate accident or wounding the vital parts by the slipping of the instrument. The more extensive and difficult the operation the more this gouge demonstrates its usefulness.

The importance of shortening the duration of the operation cannot be overestimated, and in this respect alone the new instrument de-

* Read before the Tenth Annual Meeting of the American Academy of Ophthalmology and Oto-Laryngology, held at Buffalo, September 14, 15 and 16, 1905.

serves the preference over the others. This is especially the case where there is sclerosis of the mastoid process. Here the instrument enables the operator to proceed rapidly and without fear of the risk of opening the sinus. The danger of slipping through the dura mater is reduced to a minimum, because the force applied is never parallel to the direction of the excavation, but at right angles to it. Nor is the cutting edge of the instrument sufficiently sharp to cut the soft tissues; it glides over them and thus avoids any danger of wounding the dura mater or venous sinuses. This gouge enables the operator to cut fearlessly through the outer table of the mastoid process without dread of cutting the sigmoid sinus. Even in extremely irregular positions accidental injury to the sigmoid sinus is avoided. The work can proceed so rapidly that, instead of occupying one and a half hours or more, a difficult radical operation can be completed in three-quarters of an hour or less.

Of no less moment is the advantage which the instrument affords in point of certainty and safety of action when working on the inner parts situated close to the labyrinth. By its slow and easily guided motion the cutting blade trims with the greatest accuracy. In the radical operation the facial nerve is avoided, even in a bleeding wound. This constitutes one of its greatest advantages over the chisel method, in which accidental injury to the facial nerve is unfortunately a matter of occasional occurrence.

An advantage of this gouge over the ordinary gouge or chisel, aside from the question of avoidance of danger, consists in the fact that the chisel has to be driven into the bone with a mallet; and there can be no doubt that these hammer-blows, be they comparatively gentle and repeated, or hard and few, have a certain, although indefinite, harmful and retarding action upon the convalescence of the patient. I use the new instrument in all my operations and am confident that it actually shortens the period of convalescence by four to five days. I have observed cases in which the instrument was not used that required from two to five days, or more, to recover from the immediate effects of the operation, whereas in cases operated upon with the front-bent gouge it is rare for patients to show any discomfort after the operation.

As compared with the curette, the advantage of the new instrument lies chiefly in its stronger action. For this reason it will often displace that instrument to advantage when bone has to be removed which, on account of its hardness, offers too much resistance for the curette. Finally, it is especially useful in the removal

of the upper and lower ends of the annulus tympanicus when this is cut during the radical operation.

This instrument lowers the operating risk a noticeable amount, which may justify earlier operation. Moreover, in remote country districts, where no specialist is available, the general surgeon (if he be otherwise skilled in the handling of instruments) might be entrusted with the management of this gouge, while with only the

NEW YORK EYE AND EAR INFIRMARY.

125841

Date 1905

Name		Temperature (Fahrenheit)											
Surgeon		Day of Month	1	2	3	4	5	6	7	8	9	10	
		Hour	4	5	6	7	8	9	10	11	12	13	
		107°											
		106°											
		105°											
		104°											
		103°											
		102°											
		101°											
		100°											
		99°											
		98°											
		97°											
		96°											
Pain		107.5	106.5	105.5	104.5	103.5	102.5	101.5	100.5	99.5	98.5	97.5	
Respiration		107.5	106.5	105.5	104.5	103.5	102.5	101.5	100.5	99.5	98.5	97.5	
Vitals		107.5	106.5	105.5	104.5	103.5	102.5	101.5	100.5	99.5	98.5	97.5	
Stools		107.5	106.5	105.5	104.5	103.5	102.5	101.5	100.5	99.5	98.5	97.5	

Code I

older instruments he might well shrink from the ordeal of a mastoid operation.

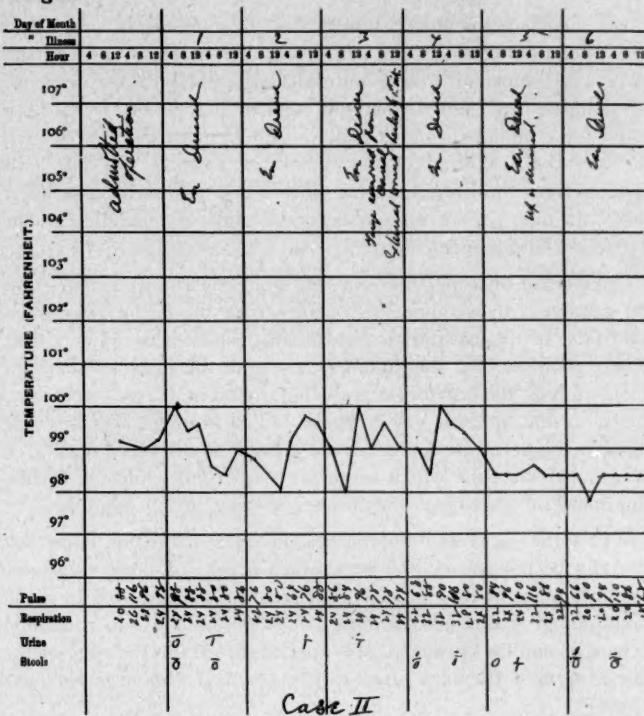
That the duration of the operation and the length of convalescence are shortened by the use of the gouge is shown by the following cases.

Case I. A boy 17 years old. Otorrhoea six weeks, large swelling above and behind ear. Mastoid process and all the cellular bone

found disintegrated. It was all removed together with three-quarters of the posterior osseous meatus and the outer wall of the epitympanic space preserving the annulus tympanicus and ossicles in-

NEW YORK EYE AND EAR INFIRMARY.

Name 309017 Date 1905
Surgeon



tact. The dura mater was uncovered in both middle and posterior cranial fossae. Wound closed; gauze in canal. Operation lasted 28 minutes. 2d day, removed gauze from canal. 3d day, patient up. 8th day, went home with membrana tympani and meatus healed.

and external wound closed by first intention. 16th day, watch $\frac{13}{60}$ (inches). 21st day, all scabs off. 34th day, watch $\frac{15}{60}$ (inches). Has had no pain since operation.

Case II. A girl 16 years old. Discharging ear 10 years ago after measles. One year previous to the operation the ear began to discharge again. Two weeks previous to the operation she had two days of pain. Headache on the same side as the sore ear and dizziness for a week. At time of operation, no discharge. Patient very hysterical.

The mastoid antrum had been drilled some years previously. Our operation consisted in converting the antrum, epi-tympanic space and tympanum proper into one large cavity, after removing the posterior wall and the hanging wall of the meatus. Operation lasted forty minutes. Patient showed no signs of discomfort after the operation. Wound closed; gauze in meatus. 3d day, took packing from meatus. External wound had healed by first intention. 5th day, patient up and dressed. 29th day, middle ear epidermatized and permanently dry.

The method of using the front-bent gouge is at once simple, safe, and decisive. In beginning an operation for the perforation of the outer table of the mastoid process, the instrument is used like a drill, swinging on its own longitudinal axis. As the excavation of the bone proceeds, the instrument is swung around in a large circle, until finally, as the opening grows larger still, the instrument cuts the edges of the perforation, the curved portion of the blade resting on the edge of the bone which serves as a fulcrum, while the cutting edge takes off shavings from the neighboring lip.

In case the excavation approaches the dura mater, the latter will naturally be uncovered. If the onward course of the gouge were now continued in the original direction, the pressure of the hand would plunge it through the dura, but at this juncture the direction is changed and the cutting edge is applied directly to the edge of the bone lying upon the dura which can be removed without any danger or injury.

As the instrument proceeds to the deeper portions, the gouge should be used only as a lever, the adjacent bone serving as the fulcrum on which the convex part of the blade rests. In this way the handle can be swung with considerable force and great accuracy, cutting off large or small fragments, as necessity and conditions indicate.

As soon as the opening in the outer table is sufficiently enlarged, the application of the rongeur is substituted for that of the gouge, while the curette is used to remove any soft structure within.

In summarizing the advantages which the front-bent gouge embodies, as compared with the instruments previously in use, I believe I may justly lay claim to the achievement of the three points I laid stress upon at the beginning, namely, increased speed, increased safety and better care of the patient. The time occupied by the operation is lessened by about one-half, especially if the bone be sclerosed. There is the powerful action which gives it the unquestioned preference over the curette, at the same time obviating the application of blows from the mallet. There is also an absence of risk of accidental injuries, owing to the positive control which the operator at all times exercises over the conduct of the instrument, which enables even surgeons not necessarily specialists to undertake an operation from which they otherwise would shrink. In consequence of all these improvements there is increased incentive to operate in doubtful cases.

The shortened time of the operation will redound to the benefit of the patient's condition, and the absence of hammer-blows and their effects upon the brain will hasten his convalescence.

It will be seen, therefore, that the front-bent gouge has many advantages and none of the disadvantages which are inseparably connected with one or the other of the older instruments. This being so, I hope this instrument will be received and generally adopted by all who have at heart the perfection of aural surgery and the welfare of their patients.

48 W. 40th St.

SOCIETY PROCEEDINGS.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

*Eleventh Annual Meeting, held in Boston, Mass., June 5, 6 and 7,
1905.*

(Continued from September Number, page 751.)

Tinnitus Aurium and Hallucinations of Hearing; or, The Relation of Ear Disease to Auditory Hallucinations of the Insane.

BY DR. W. SOHIER BRYANT, New York, N. Y. Dr. Bryant said that hallucinations of hearing were much more common and of greater psychological importance than other hallucinations, and that they were usually the primary ones. In the order of their importance, hallucinations were classified as hallucinations of hearing, of sight, of smell, and of touch. There was considerable evidence showing the association of ear disease with auditory hallucinations. The results given by a number of observers showed that in the majority of cases the patients were also suffering from ear disease. In many of the hallucination cases, tinnitus was also complained of; in fact, very few of the cases were free from disturbed aural function of the kinds which were usually accompanied by tinnitus. Without exception, unilateral auditory hallucinations occurred on the same side as the ear lesions. There was therefore good evidence that auditory hallucinations were often dependent on ear disease, and that some of the cases were due to stimulation of the auditory centers by peripheral tinnitus aurium. The gravity of the pathological impressions depended chiefly on the degree of psychical instability; they varied from mere conscious illusions to hallucinations under the patient's control, and from hallucinations to dominant delusions.

Dr. Bryant said that in susceptible, psychopathic individuals, hallucinations might be excited by the irritation of subjective noises. Improvement or cure of the coincident ear affection might logically be expected to cause an improvement or cure of the auditory hallucination.

SYMPOSIUM—DISEASES OF THE ACCESSORY SINUSES.

Frontal Sinusitis; Diagnosis, Treatment and Results. By Dr. C. G. COAKLEY, New York, N. Y.

The author stated that in chronic suppurative frontal sinusitis the important symptoms were: 1. Discharge; 2. Frequent "colds;" 3. Fullness and pain in the frontal region; 4. Dizziness and vertigo; 5. Kakosmia and anosmia; 6. Oedema and redness of the upper eyelid, and bulging of the orbital wall of the frontal sinus; 7. Diplopia; 8. Fistula formation. Examination of the nose on the affected side usually revealed the presence of pus in the middle meatus, between the middle turbinate and septum. Multiple polypi should always cause an investigation of the condition of the accessory sinuses. Among other aids to the diagnosis were percussion, pressure, trans-illumination, probing the frontal sinus through the naso-frontal duct, irrigation, and skiagraphy.

Dr. Coakley then described in detail the so-called "open method," which consisted in removing the entire anterior wall of the frontal sinus, thorough removal of the mucous membrane from all parts of the cavity, and the exposure and removal of the mucous membrane from the ethmoidal cells surrounding the naso-frontal duct. Granulations were then allowed to fill the lower portion of the naso-frontal duct, and the upper portion was packed with gauze until the cavity was completely obliterated. The speaker said his results with the "open method" had been so satisfactory that he had not as yet attempted the Killian operation.

The indications for the external operation upon the frontal sinus were: 1. Chronic suppurative frontal sinusitis, associated with multiple polyp formation in the nose. These cases were always combined with an ethmoiditis. 2. In severe acute exacerbations of the chronic disease. 3. If intranasal treatment of the frontal sinus did not suffice to prevent the discharge from passing to the antrum, and if the odor and taste of the foetid discharge from the latter cavity annoyed the patient. 4. Very large frontal sinuses, with multiple septa, particularly those with recesses extending back over the roof of the orbit, which could be but imperfectly irrigated. 5. Patients with narrow nasal cavities offered great difficulty in carrying out the intra-nasal treatment. 6. Patients who desired a rapid and permanent cure; neurasthenic patients, and cases into which a fistula leading into a frontal sinus had formed.

The Intra-Nasal Route in Operating upon the Nasal Accessory Sinuses. By Dr. WALTER A. WELLS, Washington, D. C.

The author limited himself to this phase of the subject. He stated that while he favored the intra-nasal route for attacking the diseased nasal accessory sinuses, he did not wish it to be understood that he practiced that method exclusively or considered it all-sufficient for every kind of case: on the contrary, he clearly recognized that it had its objections and limitations, and often had to be superseded by the so-called external operation. The nasal route could, he thought, properly be designated as the conservative method, as it aimed to accomplish a cure with the least possible destruction of the healthy tissue, without producing any deformity, and, as a rule, without the necessity of resorting to a general anesthetic. A mistake, however, would certainly be committed if the conclusion was reached that, because conservative, it required less skill or an anatomical knowledge inferior to that necessary for performing the more radical operation. The external operation upon the frontal sinus, especially when it aimed at a complete obliteration of the sinus, was sometimes attended with such a hideous deformity that patients frequently refused to consent to it.

Results of Operations by Way of the Maxillary Route for Combined Disease of the Maxillary Antrum, the Ethmoid Labyrinth and the Sphenoid Sinus. By Dr. T. PASSMORE BERENS, New York, N. Y.

The operation was described as follows: A post-nasal tampon was first inserted, and the tongue held forward by a ligature passed through its tip. An opening was then made into the antrum through the canine fossa, and enlarged until the anterior lateral wall, was almost completely removed. The bony naso-antral wall was then entirely removed, the mucous membrane on its nasal side being as far as possible preserved. The ethmoid cells and the turbinate process of the ethmoid were then removed. The sphenoid was opened, either through its ostium or through the posterior ethmoid cell: this opening was then enlarged until as much as possible of the anterior wall had been removed, and the cavity of the sphenoid was examined and its diseased contents removed. The field of operation was illuminated by means of a head-light worn by the operator. Instrumentation was further aided by the insertion deeply into the nostril of the little finger. This combination of the sense of sight with the sense of touch did much toward removing the feeling of uncertainty with which operations on the deeper struc-

tures of the nose were usually approached, and was a strong recommendation for the selection of this, rather than the intra-nasal route. Bleeding during the operation was usually controlled by gauze tampons dipped in adrenalin solution, although a resort to artery forceps to catch the spheno-palatine vessels was occasionally necessary.

Dr. Berens emphasized the fact that this operation was designed especially for the relief and cure of those cases of chronic multiple sinusitis involving the antrum and ethmoid, or antrum, ethmoid and sphenoid, and was not meant to be commonly performed for disease limited to the ethmoid or sphenoid, or for mild or ordinarily acute conditions.

The External Operation for the Relief of Ethmoiditis. By Dr. LEWIS A. COFFIN, New York, N. Y.

The author based his preference for the external operation over the intra-nasal operation on the following reasons: 1. By the intra-nasal method the middle turbinate had to be sacrificed. 2. The intra-nasal operation was long drawn out and painful. 3. There were certain parts of the ethmoidal tract that could not be reached by the intra-nasal method.

Further Experience with Operations for Frontal Sinus Disease. By Dr. WOLFF FREUDENTHAL, New York, N. Y.

The author said that since his last report on the radical operation for empyema of the frontal sinus a year ago, he had operated on four additional cases. As to the indications for a radical operation in dealing with that condition, there were still strong differences of opinion, and extremists were found on either side. While some operated far too often, we were not justified in saying, as some did, that in former years, when radical operations were unknown, frontal sinus disease was treated, without fatal results. The main question to decide was, could we, by operating, save a given case which would otherwise be doomed? The answer to this was yes, because we were now able to make a diagnosis of frontal sinus affections more readily than we could ten years ago. In some instances, the possibility of meningeal infection was invited by postponing surgical intervention. On the other hand, there were thousands of cases of chronic empyema of one or more of the accessory sinuses, for the relief of which a radical operation was unnecessary. The fact should not be lost sight of that these radical operations were always dangerous, and had resulted in many serious and even fatal accidents. Still, there were cases in which such an operation was absolutely imperative.

New Operation and Instruments for Draining the Frontal Sinus.

By Dr. E. FLETCHER INGALLS, Chicago, Ill. (*Published in full in THE LARYNGOSCOPE, Page 644, No. 8, Volume VX.*)

Two Successful Cases of Obliteration of the Frontal Sinus after Repeated Operations. By Dr. H. HOLBROOK CURTIS, New York, N. Y. (*Published in full in THE LARYNGOSCOPE, Page 684, No. 9, Volume VX.*)**Report of a Case of Inflamed Dentigerous Cyst Simulating Abscess of the Antrum of Highmore, Caused by an Odontoma.**

By Dr. WILLIAM H. HASKIN, New York, N. Y.

The case was reported in detail and the specimen shown.

DISCUSSION.

DR. H. P. MOSHER of Boston, in connection with this symposium upon diseases of the accessory sinuses, showed two cases of frontal sinus disease that had been operated upon by the Coakley method. In one the operation had been done two weeks ago; in the other four weeks ago. The cases were shown to illustrate the simple nature of the operation, and the appearance of the wound in the course of healing.

DR. GEORGE L. RICHARDS, of Fall River, Mass., showed three cases of double frontal sinus disease, and one of unilateral frontal disease treated by the obliteration method, with excellent results. The openings into the sinuses had been made under the ridge at the internal angle of the eye, and then enlarged, so that all the sinus area could be reached by the curette. He also exhibited a number of anatomical specimens showing abnormal conditions of the accessory sinuses. Owing to the comparative frequency of these peculiar anatomical conformations, Dr. Richards said it could hardly be expected that one operation would fit all cases. In some of the specimens shown the conditions were such that complete obliteration of all the cells was practically impossible.

A complete cure in a certain number of cases of sinus disease, the speaker said, was scarcely to be expected. When the disease had lasted for years, how was it possible to get out every cell? The majority of these patients were perfectly satisfied if they could get rid of the pain and most of the discharge, with the restoration of good, normal breathing, and without the recurrence of polypi. If so much could be done for them, they would be perfectly willing to report for treatment occasionally.

Many cases of chronic frontal sinus disease, Dr. Richards said, would get well if free drainage could be secured. The statement made by Dr. Coakley some years ago that the long continuance of the discharge prior to operation had no relation to the question of how quickly a cure could be affected was often well illustrated in antral disease.

The question of deformity resulting from operation for frontal sinusitis was not to be disregarded. As a rule, American patients, especially women, preferred the operation he had demonstrated rather than the extremely radical one of Killian, or even that of Coakley.

DR. JOSEPH PAYSON CLARK of Boston, said the subject of sinusitis and its treatment was such a large one, and had been so thoroughly covered in the papers presented, that he would limit himself to one or two points. He appreciated, as much as anyone, the great success that had attended the work of Dr. Coakley, and the unusually large experience which he had had in frontal sinus surgery, but the fact should not be lost sight of that in a very large proportion of cases there was a resulting deformity from such radical operations, and that many patients refused to submit to them if they could be relieved from pain in any other way, even with a prospect of the possible continuance of a slight nasal discharge.

When fifty per cent. or more of frontal sinus cases had been cured when treated by the so-called Ogston-Luc method, he considered it too radical a step to take to abandon that operation entirely. It seemed to him that efforts to improve its technique would be profitable. He urged that each case be most carefully studied, and the most conservative treatment adopted which seemed applicable to the case in question.

DR. JAMES E. LOGAN of Kansas City, said that this question of diseases of the accessory sinuses was a most important one, and could not be too fully discussed. There were a few points that he wished to emphasize, and one was, that conservatism should be practiced in dealing with cases of frontal sinus involvement. In most instances, the disease was not confined to the frontal sinuses, and we should not be too aggressive in dealing with this condition. The speaker said he agreed with Dr. Richards that the possible resulting deformity from a radical operation should not be overlooked. The important element in the cure was the establishment of free drainage, and this was apparently secured by the intra-nasal method described by Dr. Ingals. In suitable cases, and in their selection the X-rays would prove of valuable assistance, an intra-

nasal operation should always be considered before advising the more radical external method.

DR. H. W. LOEB of St. Louis, said that in view of the exhaustive character of the papers that had been presented, it was very difficult for any one to do more than generalize on the subject under discussion. It was evident, from what had been said, that each man was able to do his particular operation with a great deal of skill, which showed the value of the personal equation in this as well as in other fields of medicine and surgery. For example, one man was able to get better results by employing a method that he had thoroughly mastered than he would obtain with a perhaps superior method that he did not understand so well. This same factor of the personal skill and proficiency of the operator was of importance in connection with the resulting deformity. Some were strongly in favor of conservative measures, and certainly, if we were able to dispense with the radical operation, and to substitute instead the method suggested by Dr. Ingals, it would be well to advocate it.

The papers composing the symposium on this subject had at least emphasized the fact that these operations could be done, and done well, in various ways by different operators.

DR. LEE M. HURD of New York, said he had done conservative work in fifteen cases of frontal sinus disease, and had secured perfect drainage. He had simply entered the frontal sinus through the nose, enlarging the frontal duct in an anterior direction. The bone was sacrificed with forceps or other instrument, making the opening into the sinus as large as possible, and then injecting the sinus, once weekly, with a from five to twenty per cent. nitrate of silver solution. If the patient tolerated this, a saturated solution of silver nitrate was then used. At the same time, he used salt solution in the nose to counteract the effects of the silver solution there. Of the fifteen cases, he secured an absolute cure in six, and improvement in all the rest, all the symptoms excepting a diminished purulent discharge disappearing.

The speaker said he had also operated upon six cases of antral, ethmoidal and sphenoidal disease. The first one, of over a year's standing, was absolutely well without any crusting whatever. Of the remaining five, all were well, but there remained some tendency to crusting. He believed this would disappear in time. One of the cases had frontal sinusitis, and made a prompt recovery in spite of the pus running down over the antral wound.

DR. THOMAS J. HARRIS of New York, said the papers making up this symposium deserved the highest commendation, and the

members should not fail to recognize how much time and labor had been spent in their preparation, and personally he wished to express his appreciation of their value.

The speaker said he would confine his remarks chiefly to the subject of frontal sinusitis and its conservative treatment, as suggested by Drs. Clark and Logan. We should consider, first of all, the necessity of radical work in this region. Was it necessary, in the majority of cases, to do either a radical intra or extra-nasal operation? Leaving out of consideration the urgent cases, to which Dr. Coakley had referred in his paper, was it not true that the majority of our patients would be satisfied with what could be done for them by the usual methods that were employed, namely, the removal of the anterior end of the middle turbinate, and the clearing out of other obstructions? In the large majority of cases, this comparatively simple treatment would prove of immense satisfaction to the patient, and if, after this had been done, there was still a certain amount of muco-purulent discharge now and then, should we be justified in sacrificing the anterior frontal wall? The speaker said he did not think so. It should not be forgotten that the radical operation was not unattended with risk to life. Dr. Logan Turner had collected twenty-four fatal results following operations on the frontal sinus. Another factor to be borne in mind was the resulting deformity.

The most important feature in any method of operation on the frontal sinus was to secure free drainage, and as Dr. Loeb had stated, the personal equation was everything. The speaker said that while it would ill become him to criticise or even allude to Dr. Coakley's very extensive work in this field, he still thought there was room for an operation that would give rise to less deformity. He favored Dr. Richard's method, as far as the lack of deformity it entailed was concerned, but it left the question of a complete cure open to doubt, and the same was true of the Ogston-Luc operation. In the cases that he had operated on with Dr. Coffin, the speaker said that recently they had followed the Killian method. He considered the preservation of the ridge as a very essential point in avoiding the deformity that was otherwise so apt to occur.

DR. H. P. MOSHER of Boston, said that the more he studied the anatomy of the frontal sinuses in the dissecting-room, the more he felt like getting a view into the sinus in the cases which he met clinically. None of the speakers had said anything about opening the sinus for exploratory purposes. This was very simple, and left no scar. In the future, it ought to become a customary procedure,

because the operator at once saw what the condition of the sinus was, and could do little or much for its relief, as the case might require.

The method of reaching the sinus through the nose was the oldest method of all that had been devised for treating the sinus. Men were continually coming back to it, but it was poor anatomy to use this route, and therefore poor surgery. The method described by Dr. Ingals, while it excluded the danger of injuring the posterior wall of the sinus, did not exclude the danger of injury to the posterior internal angle, the dangerous area of the sinus. In that angle the cribriform plate often sent forward a prolongation; and into that region, the bony canal of the foramen cæcum, the vein which begins the great superior longitudinal sinus at times extends.

After comparing the scars left by the frontal sinus operation, the speaker thought there was less deformity in the cases that had been shown, where the sinus was entered above the orbital rim.

In connection with the method of opening the sinus at the upper internal angle of the orbit, the speaker said he wished to emphasize the point that whenever the operator used this route, he interfered with the pulley of the superior oblique muscle of the eye. In a large series of cases done in this way, a certain number would have permanent trouble from interference with the muscular balance.

Dr. Coakley said he did not shave the eyebrow in his cases, because the hairs usually came out coarse, and did not match those of the opposite side. Dr. Mosher thought it was more surgical to shave the eyebrow before operating, and in order to cover the objection raised by Dr. Coakley, both sides might be shaved.

DR. LEWIS A. COFFIN of New York, said he thought Dr. Richards struck the key-note when he said that one operation could not be expected to fit all cases. There were certain cases of frontal sinus disease in which the open method of treatment was undoubtedly indicated; there were others in which it should not be done. The speaker said he was certain that Dr. Coakley was willing and found it necessary at times to get away from any stereotyped method of operation.

In regard to skigraphy, Dr. Coffin said it was a very beautiful and instructive method of demonstrating the size of the sinuses and their relation to one another, but he doubted the statement made by one of the speakers that it showed diseased conditions of the sinuses. He did not believe that the X-rays demonstrated the diseased sinuses in any way, shape or manner. In taking these skigrams, the light had to pass through various layers of bony and

soft tissues, as well as the brain and the air cavities, and it would be expecting a great deal of the rays to have them demonstrate the presence of pus or diseased membrane in the accessory sinuses. The fact should not be lost sight of that skiagraphic pictures of the same object were not constant quantities, even by use of the same tube, and, as far as possible, under the same conditions.

In regard to the various operations for frontal sinus disease, Dr. Coffin said that much depended on the size and condition of the sinus. In dealing with a very large sinus, with many septa, it would naturally take a long time to obliterate it by the open method; in fact, too long. He regarded the Killian method as practically certain, and one that gave perfect results for the large sinuses.

The degree of scarring after the external operation on the frontal sinus by the open method depended much on where the wound was kept open for packing, because there was sure to be more or less retraction at that point. He advised against splitting the eyebrow, as that would frequently leave a disfiguring scar. The incision, preferably, should be made along either edge of the eyebrow.

Dr. Coffin, in differing with Dr. Coakley, said he had seen cases in which there was undoubted independent disease of the frontal sinus, none of the other sinuses being involved. He regarded Dr. Berens' operation as certainly an illustration of heroically radical work. In his paper, Dr. Berens had reported several cases as suffering from dry pharyngitis following this radical operation. This was not at all surprising, as the functional integrity of the nose had been entirely destroyed, and nothing was left the patient but a large, irregular hole.

In conclusion, Dr. Coffin said that if the surgeon, in operating on these cases, found it necessary to be radical, he should at all times be conservatively so.

DR. C. G. COAKLEY, in closing, said the discussion of the papers composing this symposium had brought out many good points. In the first place, the men who had advocated the so-called conservative treatment had done so in a very able manner. He regarded Dr. Ingals' operation as a valuable addition to the conservative or intra-nasal methods of reaching the frontal sinus. It certainly would seem to give better drainage than any of the other intra-nasal operations with which he was acquainted. One possible danger of the method was the accidental perforation into the brain, and the setting up of a septic process, as the curettage of the sinus was done blindly. Still, Dr. Coakley said, he expected to give the method a trial next fall, and hoped for as good results as Dr. Ingals' had obtained.

The speaker said he was perfectly in accord with the statement made by Dr. Richards that one operation could not be expected to fit all cases. The operation should be varied according to the indications met with; according to what the skiagraph showed, according to the size and shape of the sinus, and its condition. Dr. Loeb struck the key-note when he called attention to the value of the personal equation, which certainly had a great deal to do with it. Dr. Coakley said the reason he had not done the Killian operation was that he was not familiar with it, and the results he had obtained from his own method were so good that he had not been tempted to try any other. If the Killian operation gave better results, with less deformity, the speaker said he would be willing to substitute it for his own in suitable cases. He would gladly concede the superiority of that method when he became convinced of it.

Dr. Coakley said that in his paper he had touched upon the question of an exploratory operation on the frontal sinus, and in certain instances he thought that was a perfectly justifiable procedure. He could recall cases where he entered the frontal sinus, and finding that a radical operation was uncalled for, he had simply closed the wound, which healed with practically no resulting deformity.

The value of skiagraphy should not be overlooked in dealing with these cases. If Dr. Haskin had resorted to it in the case he reported, the source of the trouble would probably have readily been discovered. The speaker said he had found the X-rays very valuable in dealing with abscesses caused by aberrant teeth. In dealing with disease of the sinuses, skiagraphy did not always reveal the presence of disease, but a good negative always showed a marked difference between a normal and a diseased sinus.

Dr. Coakley said that while the method demonstrated by Dr. Richards caused less deformity than his own if the sinus was small, it was difficult, he thought, by the former method, to gain access to all the recesses of the sinus. In some cases the sinuses were narrow, or we had to deal with multiple septa, and in such instances it would be very difficult, with any curette with which he was acquainted, to get out all the mucous membrane, and unless that was done, the mucous secretion would continue, and obliteration of the sinus would not occur. The only bleeding that occurred in the course of the operation was from the mucous membrane in the sinus, and after that was removed, together with the granulation tissue, the field was absolutely dry.

In connection with his paper, Dr. Coakley showed two patients upon whom he had operated by the method described.

DR. T. PASSMORE BERENS, in closing, said that in the discussion of the papers on this subject, Dr. Clark had criticised the radical operation from the standpoint that these cases could frequently be cured by less radical measures. Dr. Berens said that in his own paper he had emphasized the point that he only resorted to the radical operation in cases where milder methods had failed. In his case of pan-sinusitis referred to by Dr. Coffin, the patient had previously been under the care of two eminent rhinologists, who had failed to give him relief. The case was a very severe one, the constitutional symptoms being such that a meningitis was suspected. The local conditions were such that an intra-nasal operation for the relief of the sphenoidal and ethmoidal disease was out of the question. One of the rhinologists who had previously seen the patient concurred as to the necessity of an operation, and was highly pleased with the result obtained.

Dr. Berens said it was only in those cases of chronic suppurative disease where palliative measures had failed that we were justified in resorting to a radical operation, whether the disease involved the ear or the accessory sinuses of the head. In dealing with these cases of disease of the accessory sinuses, in order to effect a cure, none of the involved cells should be overlooked, and drainage should be made complete.

In reply to Dr. Coffin, Dr. Berens said he thought the nose was still a useful organ, even when turned into one of those "large irregular holes." In the operation he had described, the inferior turbinate and the entire mucous membrane of the septum were always left intact, so that there still remained a large area of healthy, secreting mucous membrane. Any one could readily convince himself of that fact by seeing one of these patients undergoing an attack of coryza, which was good evidence that the operation did not destroy the function of the nose entirely.

Dr. Berens said he would be pleased to see the operation described by Dr. Ingals, but he was strongly opposed to injecting even a weak solution of commercial hydrogen dioxide through a canula into the frontal sinus. In some cases in which that cavity was affected, the disease extended to the dura, and such an injection would be very apt to set up an infection of the meninges.

Nose and Ear Complications in Diphtheria, Scarlatina and Measles. By DR. JOHN H. MCCOLLOM, BOSTON, MASS. (*Published in full in THE LARYNGOSCOPE, Page 673, No. 9, Volume VX.*)

DISCUSSION.

DR. CHARLES W. RICHARDSON of Washington, D. C., said he was greatly interested in Dr. McCollom's paper, although it was hardly necessary to come before a body of aurists and intimate the importance of involvement of the ears in connection with the infectious diseases. This subject should be preached into the minds of the general practitioners. They were the ones who should be influenced in connection with this condition. They should be induced to examine the ears of all their patients suffering from the infectious diseases, and if they lacked the necessary training, the specialist should be called in to aid them. As Dr. McCollom had stated, the ear complications of the infectious diseases were responsible for a large number of cases of deaf-mutism, at least five per cent. being due to the ravages of scarlet fever alone.

In regard to the method of infection of the ears in these cases, the speaker said it did not always occur by continuity through the Eustachian tubes, but also, as had been demonstrated, through the lymphatic and vascular systems. This occurred not only in scarlet fever, but also in measles and diphtheria.

Another point that had been demonstrated by pathologists was that in the course of the infectious diseases, the cavity of the middle ear contained an exudate in from 70 to 95 per cent. of all cases. This exudate could be observed with the naked eye, and was present in many cases of imperforate membrane. Recently, a physician in Canada reported that during an epidemic of measles, in over 40 per cent. of the cases that he studied, by objective measures, he observed inflammatory changes in the *membrana tympani*, and the physical signs of an exudate in the middle ear cavity.

In conclusion, Dr. Richardson referred to the frequency with which middle ear complications were observed in measles during the convalescent stage.

DR. GEORGE L. RICHARDS of Fall River, Mass., said he wished to protest against the use of the word paracentesis, especially by the members of this Society, and he offered as a substitute the term "incision of the drum membrane." To the general practitioner, paracentesis meant puncture of the drum membrane with a little spear-shaped knife, while the correct procedure was a free incision of the drum membrane. In the papers and discussions on this subject he suggested that the term paracentesis be eliminated once and for all.

DR. CHEVALIER JACKSON of Pittsburgh, Pa., said he heartily agreed with Dr. Richards, but instead of using the term "incision of the drum membrane," why not substitute the word myringotomy?

DR. EDWARD B. DENCH of New York, said the proposition contained in Dr. McCollom's paper, to take cultures from the nose before doing an adenectomy was new to him, and he regarded the idea as an excellent one, as he had seen cases where severe inflammatory changes followed this simple operation. Hitherto, he had always depended on the child's temperature, but it was quite possible that there were cases of latent diphtheria which could only be discovered by the culture method.

Dr. Dench said he was glad to hear that Dr. McCollom was opposed to irrigation of the nose in nasal diphtheria. The speaker said he had always objected to this practice, although it was formerly done almost as a matter of routine. He was also glad to hear the reader of the paper advocate early mastoid operation, and he hoped that this paper would be brought to the attention of the general practitioner, who was usually opposed to mastoid interference unless a decided post-aural swelling could be demonstrated, and the temperature was much elevated. The speaker considered it a distinct advance to advocate early mastoid operation in these cases, even when the symptoms were not prominent, consisting, perhaps, of nothing more than a continued profuse discharge from the ear. He had known of cases where the attending physician objected to the operation because of the free aural discharge, or because there was no temperature.

Many men, Dr. Dench said, lost sight of the fact that the mastoid should sometimes be opened for the purpose of preserving the hearing. Some even thought the operation would affect the hearing injuriously, while on the contrary it would preserve it.

Dr. Dench said he would not wait for pronounced bulging of the membrana tympani before incising it, but would resort to that procedure if there was slight redness and temperature.

DR. S. MACCUEN SMITH of Philadelphia, said he agreed with Drs. McCollom and Dench that the idea of taking cultures from the nose before doing an adenectomy was a valuable one. The speaker said he had never heard it suggested before.

As regarded the character of the bacillus causing the middle ear involvement, Dr. Smith said that in his experience, the pneumococcus was more destructive to the soft and bony tissues than any other.

Mastoid involvement was a very frequent complication of the acute exanthemata, and especially so of measles. During the past winter, within a single fortnight, he had found it necessary to operate upon six mastoids in one family, that of a physician. There

were two double mastoid operations, and two single, and in all of them the pneumococci were found. It was important, the speaker said, to do these mastoid operations early, both to preserve hearing and to prevent further extension of the suppuration.

Dr. Smith said he was thoroughly in accord with Dr. Dench in regard to the difficulty often experienced in convincing the attending physician of the presence of mastoid disease. Unless all the classical symptoms were apparent, swelling, tenderness, temperature, etc., many physicians considered an operation unnecessary. He recalled two such cases where operation was refused, and in both cases there was a rapid development of meningitis and death. The importance of early operation in these cases could not be too strongly impressed upon the minds of the physicians, and those members of the Society who were engaged in teaching students should not lose sight of that fact.

DR. WENDELL C. PHILLIPS of New York, said that while he agreed, in the main, with the statements contained in Dr. McCollom's paper, he was inclined to believe that a bacteriological examination of the nasal secretions preliminary to an adenectomy was carrying precautions a little too far. Personally, it was his practice to have the child's temperature taken twelve or twenty-four hours prior to the operation, and if it was normal, to operate; otherwise, the operation was postponed. In such a case that recently came under his observation, a slight elevation of temperature was discovered, and the child developed pertussis within a day or two. In several other cases he could recall, a slight temperature preceded an attack of follicular tonsilitis.

DR. EWING W. DAY of Pittsburg, Pa., said that in the cases in which the middle ear was involved in a rapidly destructive process complicating one of the acute exanthemata, the cause of the trouble would probably be found to be an embolism of the vessels leading to the tympanic cavity and mastoid. This condition had been demonstrated in certain cases of typhoid fever.

DR. H. P. MOSHER of Boston, asked Dr. McCollom how frequently he had observed diphtheria develop after removal of the tonsils or adenoids? Personally, he had seen it in but one instance.

DR. THOMAS HUBBARD of Toledo, Ohio, said that as acute nephritis was a frequent complication of scarlet fever, the choice of an anaesthetic was of importance in operating on such patients. He asked Dr. McCollom whether the use of an anaesthetic in these cases caused an exacerbation of the nephritis?

Dr. Hubbard thought the suggestion made by Dr. McCollom to have the nasal secretions examined bacteriologically before operating on the tonsils or adenoids was a very important one. It was a well known fact that cases of latent or very mild nasal diphtheria were comparatively frequent, and in fibrinous rhinitis it was impossible to determine positively the character of the infection without a bacteriological examination. These mild cases were a prolific source in spreading the disease among children.

DR. J. A. STUCKY of Lexington, Ky., said he did not quite understand whether Dr. McCollom advocated opening the mastoid during the height of the fever? The speaker said he had seen mastoiditis develop in the acute stage of the exanthemata, and he inquired whether Dr. McCollom would consider it advisable to operate then?

DR. JAMES F. McCAW of Watertown, N. Y., said that about a year ago he was called to see a case in which a mastoiditis had developed during the height of the scarlatinal eruption; such a case as Dr. Stucky had just referred to. In that instance, Dr. McCaw said, he had no hesitancy in operating, and he regretted that he did not do a more complete operation, as a second one was subsequently necessary. Aside from that, the case was uneventful.

DR. GEORGE A. LELAND of Boston, said that in the management of aural complications during the acute exanthemata, he most strenuously insisted on not delaying examination for the secondary rise of temperature. The ears should be examined as a matter of routine, especially in private practice, from the beginning of the disease. Possibly, the only indication that might be found for surgical interference was the drum-head, dull and lustreless, having a macerated appearance, the evidences of a slight infection of the middle ear, where free incision was of service in limiting the extent of the infective process, and determining the location of the perforation at the usual point of election. Still, there were cases of spontaneous perforation of the drum, it must be admitted, in which healing was just as rapid and uneventful as in cases where the drum was incised, provided the discharge was of short duration; it was not always safe, however, to count on this happy result.

Dr. Leland said that for the past nine or ten years, in both his hospital and private work, he had advised against irrigation of the nose in diphtheria, and since adopting that course it was rare to meet with serious cases of ear complications in the diphtheria wards, whereas prior to that time it was comparatively common. The practice was certainly a pernicious one, and should be discouraged.

In cases of mastoid disease complicated with pneumococcus infection there was usually intense inflammatory involvement at the onset. The aural discharge in these cases may persist only a short time, but there is early tenderness of the mastoid, which might persist a longer or shorter time, and the morbid process might be extending through the mastoid cells, especially if the micrococcus tetragenus was present, (the combination seeming to be characterized by a persistent, progressive, destructive quality), until it reached the epidural space, the usual symptoms heralding this advance. That the tympanum had seemed to be convalescent should not deceive us, but should cause us to suspect the more the tender mastoid, and to open it without delay.

It was surprising, at times, to find so much destruction of the mastoid process with comparatively mild symptoms after the onset. Needless to say then that such a destructive combination should be headed off either in the tympanum or in the mastoid process before deeper structures are involved.

The extremely low mortality reported by Dr. McCollom could be attributed principally to two factors: the early operation, and its thoroughness, the latter meaning that every vestige of any bony cell or air space where, microscopically, infection may be hidden, had been removed *in toto*.

DR. JOHN H. MCCOLLOM, in closing, said that diphtheria had developed in quite a number of cases following removal of adenoids; he did not know the exact number. It was a comparatively simple matter to have the nasal secretion examined preliminary to such an operation, and he thought it advisable that it should be done, particularly in those cases where there were excoriations about the nostrils. It was a well known fact that we might have nasal diphtheria with a normal temperature.

Dr. McCollom said he could recall six cases of diphtheria immediately following an operation for cleft palate, and in all of those cases there were excoriations about the nostrils.

In regard to the choice of an anaesthetic in operating in the course of scarlet fever, the speaker said that ether was usually given, and did not cause any trouble. He would not hesitate to advise operating on the mastoid even in the height of an attack of one of the exanthemata. The danger of postponing the operation was greater than that entailed by the operation itself. He could recall cases in which he now regretted that an operation had been postponed on account of the acute condition present at the time.

Dr. McCollom said he was heartily in favor of early mastoid operation, and in that connection there was much room for missionary work among general practitioners. It was a mistake to wait for tenderness. If there was discharge from the ear, it was better not to delay operating. If acute nephritis was present, the symptoms were not as a rule aggravated by the ether; he could recall a number of instances where the operation was done during the course of an acute nephritis, and the children were better after the operation.

Scarlatinal Otitis. By Dr. FRANK B. SPRAGUE, Providence, R. I.

The author said that otitis media was the most frequent complication of scarlet fever, and, everything considered, the most serious. Like the general infection, its severity varied with the epidemic, the climate and the seasons of the year. It was more common in the winter and spring months, and in the colder climates. Statistics showed that from three to nine per cent. of cases of scarlet fever had ear complications, and in about fifty per cent. of these cases, both ears were affected. Statistics further showed that of 5,613 deaf mutes in New York, 572 or nearly ten per cent., owed their condition to otitis complicating scarlet fever.

In view of the serious consequences of this condition, Dr. Sprague emphasized the importance of its early recognition. We should not wait for the ear to "break and run," as was so often done, for that was but little short of criminal negligence. As soon as there was the slightest indication of inflammation in the middle ear, the tympanic membrane should be incised, so as to preserve, if possible, the function of one of the most important organs of special sense.

DISCUSSION.

DR. EDWARD B. DENCH of New York, said that while it was well known that a certain number of cases of otitis occurred in the course of scarlet fever, accurate statistics on that point were wanting, and for that reason papers of the character of Dr. Sprague's were very valuable. Usually, in seeking information on this subject, we had to depend on text-books which were many years old.

The Indications for Operating in Acute Mastoiditis. By Dr. PHILIP D. KERRISON, New York, N. Y.

The author said these indications might be summed up as follows: 1. Sudden cessation of the aural discharge, other symptoms persisting; deep-seated pain in the mastoid region; marked sensi-

tiveness to pressure upon the mastoid over an area extending well beyond the limits of the antrum. These symptoms, in the presence of a sudden and considerable rise in temperature, would justify an immediate operation. 2. In the absence of fever, the above symptoms, unless yielding promptly, (within 24 to 48 hours), to abortive measures, would constitute a sufficient reason for operating upon the mastoid. 3. Marked tenderness over the antrum, persisting four or five days after free incision of Shrapnel's membrane would point to necrotic changes within the antrum calling for operative intervention. 4. Marked variations in the quantity of pus discharged, its maximum flow being apparently too great to be explained by the tympanic lesion, its periods of diminution being coincident with the development of mastoid pain or tenderness, or both. Such a combination of symptoms constituted one of the most positive indications for opening the mastoid. 5. Mastoid tenderness having been present and having disappeared, a discharge from the tympanic vault which resisted all rational non-operative measures, might, by reason of its persistence, justify the hypothesis of a necrotic area in the aditus or antrum. In such cases an operation was often the only means of saving the integrity of the organ, and preventing serious impairment of function. 6. Evidences of mastoid involvement having been present, the development at any time during convalescence of symptoms of septic absorption would, in the absence of other concurrent disease, constitute a positive indication for immediate operation.

DISCUSSION.

DR. EDWARD B. DENCH of New York, said that according to Dr. Kerrison, tenderness over the lower cells was more important, as a diagnostic sign, than tenderness over the antrum. Dr. Dench had found in the past four or five years, that in almost every case of acute otitis, especially in those cases complicating grippe, there was tenderness over the lower mastoid cells and none over the antrum until well-marked changes in the antrum had taken place. Whenever there was mastoid tenderless, it could always be looked upon as a sign of inflammation. The speaker said he had seen caries of the cells in the posterior wall of the canal occur very early in acute mastoiditis. Its occurrence there depended on the conformation of the cells in the mastoid, as in some cases the posterior wall of the canal was very thick. The posterior wall of the canal was simply the anterior mastoid wall, and it was very frequently affected in acute disease. The speaker said he could recall a number of cases

in which the only symptom of mastoiditis was a sinking of the upper, posterior wall of the auditory canal. Clinically, he regarded this as one of the strongest signs that the mastoid was not draining satisfactorily.

DR. S. MACCUEN SMITH of Philadelphia, said that of all the symptoms of mastoid disease, he placed most reliance upon bulging of the posterior wall of the auditory canal. He had never yet seen that sign fail. He did not mean to imply, however, that bulging of the posterior and superior walls was an invariable symptom of mastoid disease, nor would he operate on the strength of that sign alone, although he regarded it as very important. In a case that recently came under his observation, the patient was a child one year old, the daughter of a physician. That child had never had any ear trouble, had never had any discharge, and had never lost any sleep. One morning, the nurse observed a slight swelling back of the ear, over the mastoid. An examination through the external auditory canal failed to reveal the slightest redness, but there was distinct bulging of the posterior and superior walls, with characteristic redness. The case was operated on the same morning, and to his surprise he found a carious opening through the cortex; the antrum and the mastoid cells were filled with pus.

DR. J. A. STUCKY of Lexington, Ky., said that while sagging of the posterior superior wall of the canal might be pathognomonic of mastoid involvement, still the reverse was not necessarily true. We might have very extensive involvement of the mastoid cells, with absolutely no abnormal indication of it in the posterior superior wall. The speaker said he had seen several such cases, in which there was a history of ear discharge lasting some weeks, and no bulging of the superior wall at all. The ear in those cases was apparently draining well, but the patients had a septic look and ran a septic temperature, and on deep pressure there were signs of mastoid involvement. In one such case, where the patient was operated on, Dr. Stucky said he was amazed at the extensive destruction of bony tissue.

The speaker said that in the section of the country where he came from there was still much room for missionary work among the general practitioners, and even among the otologists. Many of these still waited for this bulging of the posterior superior wall, and he could recall two instances where they waited too long. In both of those cases the patient developed meningitis, and died.

DR. L. L. MIAL of New York, said that in connection with this subject of mastoid tenderness, as indicative of mastoid inflamma-

tion, he wished to mention two cases that came under his observation during the past six months. One was that of a man 23 years old who complained of severe pain in the ear and mastoid. There was excruciating tenderness over the tip of the mastoid, but no bulging or other indications of mastoid trouble. It was finally discovered that he had a badly decayed tooth on the lower jaw of that side, and when this was extracted, all his symptoms disappeared. The second case was that of a child of fourteen years, in which a similar train of symptoms was traced to the same cause.

DR. FRANCIS R. PACKARD of Philadelphia, said that bulging of the wall of the canal was a particularly valuable symptom in cases where there was no discharge. He recalled such a case in which he was called upon to operate by Dr. A. W. Watson of Philadelphia. There was no discharge, but on opening the mastoid, it was found to be rotten, and every cell was filled with pus. It was in this class of cases that the bulging was particularly valuable, as it indicated that the pus was penned in and could not get out.

DR. EDWARD B. DENCH of New York, said that if the mastoid tenderness persisted for four or five days, he would be inclined to operate. The tenderness very frequently began at the tip of the mastoid, and spread up to the antrum, and it was this last tenderness that was important.

DR. PHILIP D. KERRISON, in closing, in reply to Dr. Dench's statement that he had seen necrosis of the bony wall, said he did not see any reason why that should not occur in cases where the process went on to a distinct mastoiditis. Personally, he had never seen it. In his paper, he had tried to bring out the point emphasized by Dr. Dench, namely, that bulging of the posterior wall was the very best sign we had that drainage was not perfect. Dr. Kerrison believed that it was an important sign of severe tympanic infection, but did not necessarily point to mastoid inflammation.

In the case reported by Dr. S. MacCuen Smith, the doctor had stated that there was some swelling behind the ear, which every one agreed was an absolute indication for immediate operation. In Dr. Smith's case this post-auricular swelling was stated to have been present some days before the sagging of the posterior canal wall was noticed.

Dr. Kerrison said that while much had been written regarding antral tenderness and bulging of the canal as pathognomonic signs indicating operation, he could recall a large number of cases where both those signs were present and disappeared, and the patients made a perfect recovery without operation.

The Larynx in Typhoid Fever. By Dr. CHEVALIER JACKSON,
Pittsburg, Pa.

A brief résumé of the author's observations of the larynx in 360 cases of typhoid fever was given. Three separate types of laryngeal involvement were noted: namely, acute catarrhal laryngitis, ulcerative laryngitis and perichondritis. Among the 360 cases examined, ulcerative laryngitis was observed in sixty-eight, of which eight required tracheotomy; there was perichondritis, with necrosis in six, and without necrosis in eleven; there was ulcerative trachitis in nine; eleven were associated with acute purulent otitis media; four died.

The most important factor in the etiology of the condition was the typhoid toxæmia. As regarded treatment, intubation was useless and dangerous, but tracheotomy, if done early, was a life-saving measure. Ulceration in even the worst cases healed in ten days after tracheotomy and treatment through the tracheal wound. Tracheotomy should be done under local (Schleich solution) anaesthesia.

Acute Purulent Otitis Media Complicating Typhoid Fever; Report of a Case, with Autopsy. By Dr. EWING W. DAY,
Pittsburg, Pa. (*Published in full in THE LARYNGOSCOPE,
Page 714, No. 9, Volume XV.*)

DISCUSSION.

DR. EDGAR M. HOLMES of Boston, said that eleven years ago he had examined the ears and throats of 237 patients ill with typhoid fever at the Boston City Hospital, and in fourteen of those he found ulcerations of the larynx, including under that term the epiglottis as well as the deeper structures of the larynx. The comparatively few cases in which laryngeal symptoms were discovered might perhaps have been due to the apathetic mental condition of the patients. In one case, the entire arytenoid space was involved, with marked swelling of the epiglottis, and in that instance the voice did not disclose the fact that there was anything wrong with the larynx. That patient, although alive to-day, had been hoarse since his attack of typhoid fever. At the time, there was a question as to whether the lesion was tubercular, but repeated cultures failed to show the tubercle bacilli.

DR. JAMES F. McCAW of Watertown, N. Y., said that during an epidemic of typhoid fever which occurred in his city about a year ago he was able to report on 579 cases, and among that number, to his knowledge, there was only one case in which the larynx was involved. In that instance, there was complete sloughing of the

posterior and lateral walls of the pharynx, the tissues melting down almost like wax. Laryngeal oedema developed, from which the patient subsequently died. This was one of those purpuric cases, overwhelmed with toxæmia.

Dr. McCaw said he fully agreed with Dr. Jackson that these laryngeal complications might exist in typhoid fever and escape attention, from the fact that the larynx of these patients was rarely examined; therefore, only the severer complications were brought to our notice.

The speaker said that of the 579 cases of typhoid fever reported on, 29 were complicated by acute purulent otitis media. Of these, four were of the fulminating type of the disease, as described by Dr. Day. Two of these cases died, and no autopsy was obtained, death apparently being due to intracranial involvement or toxæmia. In the other two, the mastoid was operated on. In one, where the operation was done on the third day after the first ear pain, the entire mastoid was involved in a destructive process. Dr. Day's findings in *his* case certainly threw some light on the rapidity of this infective process in the middle ear. In addition to the thrombotic interference with the nutrition of the parts, the low vitality of the patients was a factor in these cases, these two factors readily accounting for the rapid destruction of tissue in the fulminating type of the disease.

DR. CHEVALIER JACKSON, in closing, referred to the remarks of Dr. Holmes, and said that one peculiarity that had been noted in connection with various epidemics of typhoid fever was that they presented a great difference in the number and severity of the complications of the nose, throat and ear. The same was true of epidemics of influenza and the exanthemata. Ear complications were common in some epidemics; rare in others. When influenza first became epidemic, ear complications were very common, while more recently they were rarely observed. The speaker said he could not explain this, but the fact had been very apparent in the various epidemics they had had in Pittsburg. More recently, throat complications had been comparatively common in that city in connection with typhoid fever, where that disease, like the poor, was always with them. An unhygienic environment prior to admission increased the severity of the general toxæmia, and doubtless had much influence on the occurrence of these various complications, as also had the foul oral sepsis.

Report of Seven Intra-Cranial Operations within a Year. By

Dr. GEORGE F. COTT, Buffalo, N. Y.

The first was a case of pachymeningitis, with extra-dural abscess; the second was one of septic thrombosis, with epidural abscess; the third case was one in which the dura was attached to the roof of the external canal by a fibrous band; in the fourth case there was a probable pachymeningitis following chronic middle ear suppuration and the mastoid operation; the fifth case was one of sinus thrombosis in the temporal lobe following a radical operation for chronic ear discharge; the sixth case was one of brain abscess occurring seven months after the radical operation; the seventh case was one of sinus thrombosis.

The Serum Treatment of Hay Fever. By Dr. HANAU W. LOEB, St. Louis, Mo.

This paper embraced a brief review of Professor Dunbar's theory of the serum treatment of hay fever. Dr. Loeb said that in typical cases of rose fever, or German hay fever, he derived more benefit from the serum treatment than in any other variety of cases. In every case there was relief after a few days from the symptoms of itching of the eyes, nose and palate, the sneezing and the nasal obstruction. Typical cases of American hay fever, with obstruction manifested only during the paroxysms, also showed improvement, the itching and sneezing being relieved in every case where the remedy was used under Dr. Loeb's direction. In some of the cases the remedy had failed to give relief until it was properly administered. There were other cases in which the condition of the nose interfered with the action of the serum, at times a considerable deformity or ridge or spur preventing the insufflation of the powder. There were other cases in which the ordinary pollantin was of no avail, but in which the serum produced by immunization with golden-rod and rag-weed toxin was effective.

Dr. Loeb said his experience went to show that Dunbar's serum was effective against the distressing symptoms of hay fever; that the serum made from the toxins of the pollen of rag-weed and golden-rod would be more effective in our American hay fever seemed likely both from analogy and from the cases reported; that there were more problems to be solved in connection with the influence of pollen in the production of hay fever; and, finally, that an important step forward had been made by Dunbar in this work.

DISCUSSION.

DR. THEODORE W. CORWIN of Newark, N. J., said he had analyzed about 21 cases of hay fever in which the serum, either in the fluid or powdered form, had been employed, and in 55% of these it seemed to have some effect. In the remaining cases it was either totally ineffective, or the patients refused to persist in the treatment.

In those cases where the serum treatment had a beneficial effect, the improvement would be noticeable within two or three days; otherwise it was useless to persist in the treatment. In those cases where the remedy was efficient, it was very acceptable to the patients. This was mainly true of the cases seen during July and August, but after the first of September, several (4) patients suffered from exacerbations of their trouble, and discontinued the use of the serum.

DR. CLEMENT F. THEISEN of Albany, N. Y., said that his results with the serum treatment had not been as favorable as those reported by Dr. Loeb. Early in the summer of 1903, in response to a request, Dr. Dunbar had sent him several tubes of the serum, which at that time was made from the true grasses, not from goldenrod or rag-weed. His results with that preparation were not very good. The class of cases selected, perhaps, were not suitable for that remedy. Last summer, with the preparation that was obtainable in this country, his results were better. During the summer of 1903, he had treated seven cases, and last summer about twelve or fourteen cases with pollantin, and in only a single instance was there a very marked result. That was a case where the hay fever was accompanied by severe asthma, and a single application of the powder relieved the paroxysms of asthma and the eye symptoms, and the relief persisted for days. In one other case the relief was also quite decided. In other cases where the powder exerted a beneficial effect, it had to be given in repeated small doses, and the immunity did not last for a longer period than from six to twelve hours.

In cases where asthma complicated the hay fever, it was important to follow the directions laid down by Professor Dunbar, and instruct the patient not to undertake a railroad journey, and to sleep in a room with closed windows.

In the interesting experiments recently made by Dr. John N. Mackenzie, of the Johns Hopkins Hospital, it was found that in predisposed subjects who had suffered for some time from hay fever, indifferent substances dropped into the eyes produced the

same train of symptoms as the pollen toxin, which seemed to indicate that there was an element of suggestion in it.

Dr. Theisen said that while in his cases the symptoms had been distinctly lessened by the use of the serum, still he did not think the relief was very much greater than he had obtained from some other methods of treatment, excepting in a few cases. In addition to the serum, he had also used other local measures, such as had commonly been resorted to prior to the discovery of the serum. The serum seemed particularly effective in relieving the sneezing and the eye symptoms.

The speaker said he did not see how any local treatment of hay fever could be entirely efficacious. In this disease we were dealing with a neurotic class of subjects, and local treatment alone could not be altogether successful. Perhaps, if we could get a serum for each particular variety of hay fever, or a combination of the different serums, the results might be better.

DR. JAMES E. LOGAN of Kansas City, Mo., said the subject under discussion was a very interesting one, and he congratulated Dr. Loeb on the very careful investigation he had made. It was certainly very thorough, and the speaker said he was satisfied that the subject deserved more consideration than was usually given to it.

While the work done by Professor Dunbar in connection with the serum treatment of hay fever had been very scientific, Dr. Logan said he feared it would not bring him very satisfactory results, and the cause of the failure would be found as much in the patient as in anything else. Hay fever patients were the most difficult subjects on earth to treat. They were highly nervous, and very few of them really had any faith that physicians could do them much good. They were governed more or less by psychical influences, and many of them, apparently, did not care to get well. They looked forward to their little vacation in some immune locality, where they enjoyed the company of their fellow-sufferers, and discussed their discomforts to their heart's content. They formed themselves into social clubs, as they had done at Marquette, Michigan, and they even contemplated a national organization of hay fever sufferers. All these factors rendered the treatment of hay fever patients more difficult.

Dr. Logan said that in the cases he had treated with Professor Dunbar's serum, the results had not been very satisfactory. Out of ten treated in that way in 1903, he knew of only one case in which the method gave relief. The speaker said that a member of

his own household had long suffered from hay fever, so that he was in a position to speak feelingly on the subject.

DR. HERBERT E. SMYTH, of Bridgeport, Conn., thought it impossible for any one serum to suit all cases of hay fever, because of its varied causation. He knew people who could not remain in the vicinity of a horse without getting an attack of the disease, and any benefit derived in such a case must, in his opinion, be due to suggestion.

DR. FREDERIC C. COBB of Boston, said that two years ago, while in Hamburg, he met Professor Dunbar and went over the institute with him, and saw the method of preparing the serum. At that time, Dr. Cobb said, he introduced a small quantity of the toxin into his own eye as an experiment. He had never suffered from hay fever, and the toxin produced no effect. In the case of Dr. Dunbar's assistant, however, who was subject to hay fever, the toxin immediately caused the eye to become inflamed, but at once cleared up again upon the introduction of the antitoxin.

Dr. Cobb said that his own experience with the serum had been very similar to that of the previous speakers. It occasionally proved beneficial, but often failed to have any effect; but in those cases in which it did succeed, the success was so brilliant that he could not but believe that there was a great deal in Dr. Dunbar's theory. We should not forget that hay fever was due to a variety of causes; that some cases were due to various pollens, or to the inhalation of dust, to horses, etc., and we should not expect one kind of serum to cure them all. The theory of the serum treatment had not yet been carried as far as it eventually would be. The golden-rod and ragweed from which Dr. Dunbar's more recent serum was made was collected for him in this country by commercial firms, and the plants probably became more or less stale before they reached the laboratory. In cases where the serum was effective, it certainly appeared to have a marvelous influence.

Before concluding, Dr. Cobb asked Dr. Loeb what he meant by an excessive dose of the serum? Whether he simply meant more than Dr. Dunbar had advised? Also, what were the evidences of an excessive dose, and whether the directions given by Dr. Dunbar in regard to the treatment in foreign countries also applied to this country?

DR. H. W. LOEB, in closing, said the reports of the serum treatment made by the various speakers were very similar to those obtained by the majority of men who had been working along this

line. They had obtained no result in perhaps the larger number of cases, and startlingly good results in a comparatively few instances.

Dr. Loeb said that personally he had become very enthusiastic in regard to this method of treating hay fever. Last summer he spent about three weeks with Dr. Dunbar, and had become imbued with his earnestness and serious study of the subject. He did not hesitate to tell his patients that the serum would help their hay fever, and he believed that the very psychical elements of which Dr. Logan had spoken had to be combatted. There was something else beside the paroxysm; namely, the psychical condition of the patient. This enthusiasm was a necessary part of the treatment, and any man who was opposed to the remedy, or regarded it doubtfully, could not be expected to make very satisfactory clinical observations regarding it.

Some of the speakers had referred to horse hay fever. Dr. Dunbar had pointed out that these horses carried the pollen with them all the time, and in driving it was freely blown back and inhaled by the susceptible individual. Pollen was also found in the dust of the streets, and was continually kept stirred by the horses' feet. Dr. Dunbar had also proven absolutely that in experimental hay fever the roughness of the pollen grains had nothing to do with the production of the paroxysms. They were not due to irritation, but to a tox-albumin, which was found in connection with the starch bodies. In a certain individual, one particular antitoxin might be of no value, because the disease was produced by the toxin of another albumin.

As far as dosage was concerned, Dr. Loeb said he could not specify it. He began with a very minute dose, and did not increase it if he could get along without doing so. Large doses apparently aggravated the symptoms. It was necessary to determine the dose in each individual case.

Dr. Loeb said he did not observe the directions given by Dr. Dunbar regarding the patient's sleeping apartments. He simply let the patient understand that if he exposed himself to a large amount of pollen toxin, the antitoxin would proportionately fail to relieve the symptoms. The patient was made to understand that he should not expose himself unnecessarily.

SYMPOSIUM—SYPHILITIC MANIFESTATIONS IN THE UPPER AIR PASSAGES.

Syphilis of the Nose and Accessory Sinuses. By Dr. JAMES E. LOGAN, Kansas City, Mo. (*Published in full in THE LARYNGOSCOPE, Page 650, No. 8, Volume XV.*)

Syphilitic Manifestations in the Larynx and Trachea. By Dr.

FRANCIS B. PACKARD, Philadelphia, Pa. (*Published in full in THE LARYNGOSCOPE, Page 660, No. 8, Volume XV.*)

Syphilitic Manifestations in Naso-Pharynx, Ear and Buccal

Cavity. By Dr. J. A. STUCKY, Lexington, Ky. (*Published in full in THE LARYNGOSCOPE, Page 657, No. 8, Volume XV.*)

DISCUSSION.

DR. THOMAS H. FARRELL of Utica, N. Y., said that in the treatment of late syphilitic lesions, he differed with Dr. Logan in his method of administering potassium iodide. Instead of beginning with a ten grain dose of an aqueous solution, given after meals and increased one drop daily; he invariably gave it one hour before meals, well diluted with milk, and increasing each dose by one drop. Given in that way, the drug rarely caused gastric irritability, and was usually well tolerated.

DR. JAMES E. LOGAN, in closing, said the point he wished to emphasize in his paper was that it was very important to gradually increase the dose of potassium iodide in the treatment of tertiary syphilitic lesions. If, for example, the patient was getting forty or fifty grains of the drug three times daily, and the stomach became irritable, he would not increase the dose until the gastric symptoms had disappeared, when he again would begin to gradually increase it.

In cases of syphilis where secondary and tertiary symptoms were present coincidently, the mixed treatment was indicated. There might be secondary symptoms in the digestive tract, and tertiary symptoms in the upper respiratory tract. The speaker said he had seen cases where there were mucous patches in the mouth and pharynx, and necrosis of the bones of the nose at the same time.

For the tertiary manifestations and gummatous and necrotic conditions, when not accompanied by secondary lesions, potassium iodide, in gradually increasing doses, was the treatment *par excellence*.

Report of a Case of Abscess in the Temporo-Sphenoidal Lobe of the Brain following an Acute Otitis Media; Operation; Recovery. By Dr. THOMAS H. HALSTED, Syracuse, N. Y.

The case was that of a boy of eleven years. There was comparatively slight earache during the first nine days of the otitis media. There was unusual bulging of the drum-head, and complete relief of the pain followed its incision. The discharge ceased at the end of four days, and the drum-head healed rapidly. From that time on

there was almost no complaint regarding the ear or head, but there was marked anorexia, listlessness, and change in disposition. There was an absence of definite symptoms pointing to a brain complication until vomiting, dizziness and a slow pulse occurred ten days after incision of the drum membrane. During this period, headache was conspicuously absent, excepting on one occasion. There were no mastoid symptoms at any time. The blood count, six days before the first operation, showed a marked leucocytosis, and on the day of the operation this was very decided. During the first twenty-four hours after the first exploratory operation there seemed to be a marked relief of all the symptoms, which was attributed by the parents to the fact that the patient had vomited a long round worm, and by the physicians to the relief afforded by exposing the dura and allowing the escape of an appreciable quantity of serum. Thirty-six hours from the time of that operation, however, the boy had a sudden convulsion, with marked lowering of pulse, pupillary changes, vomiting and beginning stupor. This indicated that the diseased brain area had escaped detection at the previous operation, and that probably a rupture into one of the ventricles had occurred. This latter supposition was apparently verified during the second operation by the escape of clear cerebro-spinal fluid, followed immediately by thick pus from the abscess cavity when this latter was reached. The success of the operation was greatly handicapped by the venous hemorrhage, first from the diploe, and then from the sigmoid sinus, so that the patient almost died from hemorrhage on the table before the abscess was entered, and necessitating a venous saline infusion and saline enemas.

The patient's recovery was rapid and without incident. The operation had resulted in an extensive loss of bone, and a large area of the dura was exposed, but granulation and healing was rapid. The abscess, which was in the temporo-sphenoidal lobe, was about the size of an egg, and held at least two ounces of pus. The infection was due to the streptococcus. The mastoid was entirely free from involvement, the infection having probably reached the brain along the sheaths of the lymphatics or veins, passing through the tegmen-tympani.

DISCUSSION.

DR. JAMES E. LOGAN of Kansas City, Mo., said the case reported by Dr. Halstead was a most interesting one. A peculiar feature of the case was the temporary improvement that followed the vomiting, and the expulsion of the worm. The case was an obscure one in many of its phases, as the symptoms that pointed to a brain abscess

might also have been the result of gastro-intestinal disturbance caused by the presence of the worm. Dr. Logan said he could sympathize with Dr. Halstead in the difficulty he encountered in controlling the hemorrhage from the diploe and the sigmoid sinus during the second operation. He recalled such a case in his own experience where the bleeding was so profuse that transfusion was necessary to save the life of the patient.

Orbital and Meningeal Infection from the Ethmoid Cells; Report of a Case; Death. By Dr. JAMES F. McCAW, Watertown, N. Y.

This case was one of fatal meningitis resulting from nasal suppuration, and exemplified the danger in neglected cases of this character. The path of the infection seemed to have been an unusual one, the pus finding its way across the orbital cavity to the external angular process, and gaining an exit there, it formed a large subperiosteal collection. Traveling backwards, it entered the cranial cavity through the sphenoidal fissure, apparently remaining subperiosteal throughout. Dr. McCaw said that although a fatal outcome in these cases was rare, it was nevertheless a possibility in every case of suppurative sinusitis.

The Significance of Edema of the Pharynx. By Dr. JACOB E. SCHADLE, St. Paul, Minn.

The author said the association of oedema of the pharynx with acute nephritis was a new observation, and deserved mention on account of its clinical importance. He reported such a case coming under his observation.

